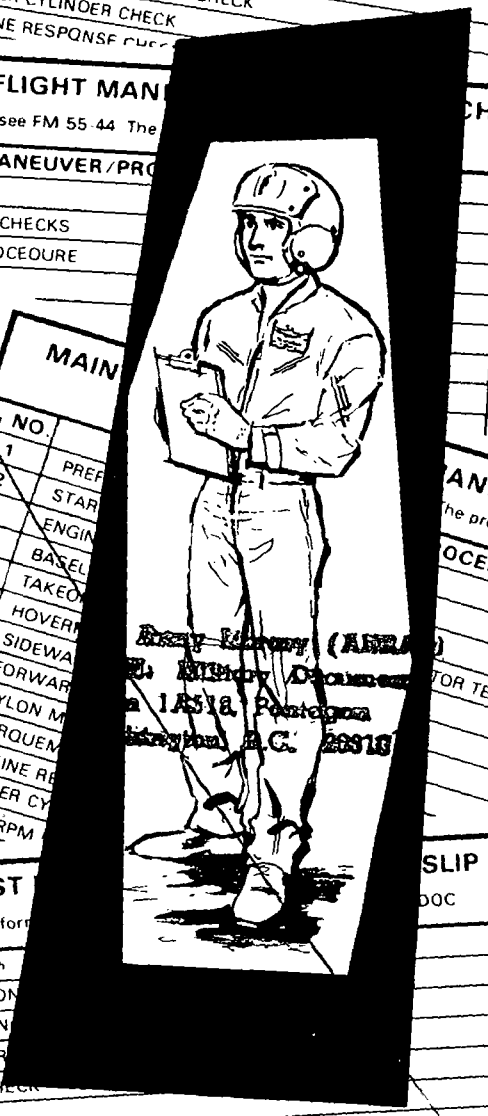
FIELD MANUAL

FM 55-44

STANDARDIZED MAINTENANCE TEST FLIGHT PROCEDURES



HEADQUARTERS, DEPARTMENT OF THE ARMY

REFERENCE

FM 55-44
C1

Change
No. 1

Headquarters
Department of the Army
Washington, DC, 31 December 1982

STANDARDIZED MAINTENANCE TEST FLIGHT PROCEDURES

Posted 26-May-83 gct

FM 55-44, 30 December 1981, is changed as follows:

1. New or changed text is indicated by a star in the margin.
2. Remove old pages and insert new pages as indicated.

Remove pages	*Insert pages*
4-1 thru 4-27	4-1 thru 4-29
5-1 thru 5-32	5-1 thru 5-32
5-35 and 5-36	5-35 and 5-36
5-39 thru 5-44	5-39 thru 5-44
5-47 thru 5-54	5-47 thru 5-54
B-1 thru B-4	B-1 thru B-4
Glossary 1 and 2	Glossary 1 and 2

3. File this change sheet in front of the publication for reference.

The Pentagon Library
Rm 1A518, Pentagon
Washington, D.C. 20310

C1, FM 55-44

31 DECEMBER 1982

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

DISTRIBUTION:

Active Army, ARNG, and USAR: To be distributed in accordance with DA Form 12-11A, Requirements for Aviation Company (Qty rqr block no. 1); plus; DA Form 12-31, Requirements for all Fixed and Rotor Wing Aircraft (Qty rqr block no. 321).

Additional copies may be requisitioned from the US Army Adjutant General Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220.

Reference
S/SBJ 1-544, 30 June 86
current copy located next door in Army Studies Unclassified/Limited/USGO

FIELD MANUAL
NO. 55-44

FM 55-44

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 30 December 1981

STANDARDIZED MAINTENANCE TEST FLIGHT PROCEDURES

PREFACE

This field manual is intended to be used by commanders as a guide for establishing a standardized maintenance test flight (MTF) program. It provides standardized aviation MTF procedures, and MTF personnel evaluation requirements and procedures as developed by the US Army Transportation School (USATSCH) in coordination with the Directorate, Evaluation and Standardization, United States Army Aviation Center (USAAVNC), Fort Rucker, Alabama. It augments the standard test flight procedures of the applicable aircraft MTF checklist, and establishes the criteria for implementing and maintaining a worldwide standardized MTF program. This manual was written by the USATSCH. Users of this manual are encouraged to recommend changes or submit comments for its improvement. Comments must be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms), and should reference the specific page, paragraph, and sentence of the text to be changed. Reasons for each recommended change must be stated to allow complete evaluation and to insure proper understanding of the suggestion. Forward your suggestions to **Commandant, USATSCH, ATTN: ATSP-ES, Fort Eustis, Virginia 23604 (AUTOVON 927-4164).**

NOTE: Use of the male gender in this publication is for ease of reading. Whenever the masculine gender is used, both masculine and feminine genders are intended.

The Army Library (ANRAL)
ATTN: Military Documents
Room 1A518, Pentagon
Washington, D.C. 20310

Table of Contents

		Paragraph	Page
	PREFACE		i
CHAPTER 1.	POLICY		
	Purpose and Scope	1-1	1-1
	Responsibilities	1-2	1-1
	The Army MTF Standardization Program	1-3	1-1
	MTF UT, MTF IP, and SIP Selection Criteria	1-4	1-2
CHAPTER 2.	TRAINING		
	Qualification Training	2-1	2-1
	Refresher Training	2-2	2-1
	Mission Training	2-3	2-2
	Continuation Training	2-4	2-2
	Multiple Aircraft Requirements	2-5	2-2
	Maintenance Test Flight Personnel Training Record (DA Form 5051-R)	2-6	2-2
	Standardization MTF Evaluation/Training Gradeslip	2-7	2-4
CHAPTER 3.	EVALUATION CONCEPTS AND GUIDELINES		
	General	3-1	3-1
	MTF Personnel Annual Evaluation Concept	3-2	3-2
	MTP Evaluation	3-3	3-2
	MTF Unit Trainer Flight Evaluation	3-4	3-4
	MTF Instructor Pilot Flight Evaluation	3-5	3-4
	MTF Standardization Instructor Pilot Flight Evaluation	3-6	3-5
CHAPTER 4.	OBSERVATION HELICOPTER MAINTENANCE TEST PILOT TASKS		
	General	4-1	4-1
	OH-58 Maintenance Test Pilot Task List	4-2	4-1
	OH-58 Maintenance Test Flight Maneuvers Gradeslip	4-3	4-2
	Task Content	4-4	4-3

OH-58 Maintenance Test Pilot Tasks 4-5 4-4
OH-6 Maintenance Test Pilot Tasks (To be published)

CHAPTER 5. UTILITY HELICOPTER MAINTENANCE TEST PILOT TASKS

General 5-1 5-1
UH-1 Maintenance Test Pilot Task List 5-2 5-1
UH-1 Maintenance Test Flight Maneuver Gradeslip 5-3 5-2
Task Content 5-4 5-3
UH-1 Maintenance Test Pilot Tasks 5-5 5-4
UH-60 Maintenance Test Pilot Task List 5-6 5-33
UH-60 Maintenance Test Flight Maneuver Gradeslip 5-7 5-34
UH-60 Maintenance Test Pilot Tasks 5-8 5-35

CHAPTER 6. ATTACK HELICOPTER MAINTENANCE TEST PILOT TASKS

General 6-1 6-1
AH-1 Maintenance Test Pilot Task List 6-2 6-1
AH-1 Maintenance Test Flight Maneuvers Gradeslip 6-3 6-3
Task Content 6-4 6-4
AH-1 Maintenance Test Pilot Tasks 6-5 6-5

CHAPTER 7. CARGO HELICOPTER MAINTENANCE TEST PILOT TASKS

General 7-1 7-1
CH-47 Maintenance Test Pilot Task List 7-2 7-1
CH-47 Maintenance Test Flight Maneuvers Gradeslip 7-3 7-2
Task Content 7-4 7-3
CH-47 Maintenance Test Pilot Tasks 7-5 7-4

CHAPTER 8. FIXED WING MAINTENANCE TEST PILOT TASKS (To be published)

APPENDIX A. References A-1
APPENDIX B. Local Reproduction Authorized DA Forms B-1
GLOSSARY ..... Glossary 1

CHAPTER 1

POLICY

1-1. PURPOSE AND SCOPE.

This publication is a guide for administering the maintenance test flight evaluation (MTFE) and standardization program.

1-2. RESPONSIBILITIES.

a. The US Army Aviation Center (USAAVNC), Fort Rucker, Alabama, has the overall responsibility for aviation standardization and administration of evaluation rides as outlined in the appropriate aircrew training manual (ATM). The US Army Transportation School (USATSCH), Fort Eustis, Virginia, has the overall responsibility for evaluation and standardization of MTF procedures.

b. As outlined in a memorandum of understanding between the two agencies, the USATSCH will provide maintenance test flight standardization instructor pilots (MTF SIP) to act as an integral part of the USAAVNC DA standardization evaluation assistance team, to evaluate designated maintenance test pilots (MTP), maintenance test flight unit trainers (MTF UT), and maintenance test flight instructor pilots (MTF IP) in aviation units throughout the active and Reserve components of the US Army.

c. Commanders will—

- Implement standard maintenance test flight policies and procedures through existing flight standardization committees.
- Nominate MTF UTs and/or MTF IPs for validation by the Installation Aviation Flight Standardization Committee.
- Designate MTPs as outlined in TM 55-1500-328-25 and AR 95-1.

1-3. THE ARMY MTF STANDARDIZATION PROGRAM.

a. The MTF standardization program will help commanders at all levels in providing unit readiness, aviation safety, and professionalism by promoting the use of standard procedures and techniques. This field manual is designed to be the basic document for providing guidance and for insuring that standard procedures and techniques are used in conducting maintenance test flights. By using the MTF standardization program, the commander can insure that MTP proficiency is matched with the unit's mission.

b. The Directorate of Evaluation and Standardization (DOES), is an integral part of the DA aviation standardization evaluation/assistance team which evaluates the effectiveness of the individual, unit, resident, and nonresident MTP training portions of the aviation standardization program.

(1) ***Organization.*** The standardization team is an element of the DOES, USATSCH. The team personnel must be graduates of the aviation maintenance officer course (AMOC), phase II (test flight), and have the MOS or additional skill identifier (ASI) for the designated evaluator position on the team. In addition, the personnel must have had field maintenance experience and hold IP qualification.

(2) ***Objective.*** The USATSCH MTF SIP team will evaluate MTPs in active Army and Reserve components in accordance with AR 95-1, the appropriate aircraft MTF checklist, and this manual. They will:

- Provide standardization evaluation/assistance to the USATSCH resident test flight training course, evaluating effectiveness and the standards of test flight training.
- Recommend specific policy guidance to the aviation standardization program at Fort Rucker.
- Provide MTF standardization input for changes to DA flight publications.
- Provide MTF standardization subject matter expertise to other activities at Fort Eustis and Fort Rucker in preparation and review of doctrinal, organizational, and materiel actions.
- Coordinate with USATSCH academic elements in the review of standardization procedures and techniques of test flight and academic instruction for technical content of the principles, theories and practices of test flight procedures, requirements, and equipment.
- Review and evaluate extension training material (ETM) pertaining to test flight.
- When requested, review and evaluate MTF-related articles submitted for publication in *Aviation Digest* and other aviation-related publications, for technical accuracy, content, and standardization.
- Review proposed changes of test flight procedures submitted by other agencies.
- Provide MTF standardization input to USATSCH.
- Collect statistical data concerning the MTF standardization program.
- Establish liaison with Troop Support and Aviation Materiel Readiness Command (TSARCOM) for coordination on all MTF-related DA Forms 2028.

1-4. MTF UT, MTF IP, and MTF SIP SELECTION CRITERIA.

a. An MTF UT will have been designated, on orders, by his unit commander as an MTP; will have successfully completed the flight and academic requirements of AMOC; and will have demonstrated to an MTF IP the ability to instruct the required technical tasks of an MTP.

b. An MTF IP must meet the MTF UT selection criteria and, additionally, must have demonstrated to an MTF SIP the ability to evaluate the MTP skills necessary to successfully complete an MTFE.

c. An MTF SIP must meet the MTF IP selection criteria; must have the ability to implement, monitor, and participate in the MTF standardization program; and must have demonstrated to an MTF SIP the ability to verify standardization of MTF evaluators in their performance of the MTFE process.

CHAPTER 2

TRAINING

2-1. QUALIFICATION TRAINING.

a. ***Qualification Training Program.*** This program is designed to qualify aviators to perform as maintenance test pilots. Formal MTP qualification is provided through the AMOC test flight (phase II) and constitutes award of an additional skill identifier (ASI). If a commander has no AMOC test flight phase II graduates in the unit, he may designate an MTP in accordance with (IAW) AR 95-1 and TM 55-1500-328-25. The designee should be examined on his ability to successfully complete an MTF by an MTF IP or an MTF SIP prior to assuming duties as an MTP.

b. ***Prerequisites.*** Ideally, prior to beginning qualification training as an MTP, the individual should meet all the prerequisites for attendance at AMOC as outlined in DA Pam 351-4; however, as a minimum, the provisions of AR 95-1 and TM 55-1500-328-25 must be met.

c. ***Qualification Requirements.*** An aviator is qualified as an MTP when he has:

- Successfully completed the flight and academic instruction of AMOC or satisfactorily met the provisions of TM 55-1500-328-25.
- Demonstrated flight proficiency to MTF IP or MTF SIP.
- Been designated on unit orders by the unit commander.

2-2. REFRESHER TRAINING.

MTPs who have been away from test flying for an extended period of time will have to undergo refresher training before performing test flights. An MTP will not participate in any MTF refresher training until he has successfully completed his ATM refresher training.

a. ***Prerequisites.*** Prior to refresher training, the MTP's proficiency must be evaluated. The evaluation will be conducted by an MTF IP or MTF SIP through a proficiency flight evaluation. Based on the results, a specific training program can be tailored to meet the individual's needs.

b. ***Training Requirements.***

- The requirements for MTPs will be the same as the operational pilots specified in the ATM, i.e., refresher training is mandatory when the pilot has been away from test flying for more than 6 months. Absences of less than 6 months *may* require training, depending on the individual's proficiency.
- Any refresher training that is required will be oriented directly to the tasks in which the aviator is deficient.

- Refresher training should include MTF academic and contact instruction.
- An individual will progress to mission training when he has demonstrated his proficiency to an MTF IP or an MTF SIP.

2-3. MISSION TRAINING.

Mission training is geared to tasks that are peculiar to the unit's mission. An MTP's tasks will not change as long as he is test flying the same type aircraft, regardless of his unit assignment. Any requirement to be proficient in additional aircraft can be handled in refresher training.

NOTE: If a commander requires his MTPs to perform flight activity category (FAC) 1 tasks, he *will not* delete any MTF tasks outlined in this FM.

2-4. CONTINUATION TRAINING.

Continuation training is designed to sustain the MTP's proficiency in the performance of his duties.

a. Continuation training for MTPs will consist of *all* tasks outlined within the applicable aircraft chapter of this FM.

b. In addition to the required ATM tasks, two iterations of the appropriate MTP tasks will be performed semiannually. These iterations can be accomplished during two general test flights or simulated general test flights. All maneuvers need not be performed during one flight period. The following guidelines will assist the commander in planning his annual flying hour program.

Type Aircraft	Flight Hours (Semiannual)
OH-58	5
UH-1	4
UH-60	4
AH-1	4
CH-47	4

2-5. MULTIPLE AIRCRAFT REQUIREMENTS.

A primary aircraft will be designated when:

- An MTP is required to perform test flight duties in more than one aircraft in the same category.
- An MTP is required to perform test flight duties in both aircraft categories.

2-6. MAINTENANCE TEST FLIGHT PERSONNEL TRAINING RECORD (DA FORM 5051-R).

a. A sample MTF personnel training record form is at figure 2-1. Local reproduction of this form is authorized. See appendix B for DA forms that can be locally reproduced. The training record is to be maintained in the individual flight training folder (IFTF).

MAINTENANCE TEST FLIGHT PERSONNEL TRAINING RECORD

For use of this form, see FM 55-44 The proponent agency is TRADOC

1. NAME AND RANK	2 DATE OF BIRTH	3 MTFE COMP	4 AMOC PHASE II
JONES, WALTER G., CW4	15 FEB 44	10 FEB 81 UH-1H	67-16 18 JUL 67

5 INITIAL MTFE	6 ADDITIONAL ACFT MTFE	7 ADDITIONAL ACFT MTFE	8 INITIAL MTFE	9 ADDITIONAL MTFE	10 ADDITIONAL MTFE
12 DEC 80 UH-1H	14 FEB 81 UH-60		28 DEC 80 UH-60		

11 UNIT/ORGANIZATION	12 TOE/TDA POSITION	13 PERIDD COVERED
45TH TRANS (AVIM)	03/01 MAINT TEST PILOT	15 FEB 81 THRU 15 AUG 81

14 TASKS — GENERAL TEST FLIGHT	14a FREQUENCY REQUIRED	14b DATE AND NUMBER OF SEMIANNUAL ITERATIONS													
		4 MAR	6 MAR	10 MAR	25 MAR	3 JAN	21 JAN								
TF 5003	2	1	1												
TF 5006	2	1	1												
TF 5009	2	1	1												
TF 5012	2	1	1												
TF 5015	2	1	1												
TF 5018	2	1	1												
TF 5021	2	1	1												
TF 5024	2	1	1												
TF 5027	2	1	1												
TF 5030	2	1	1												
TF 5033	2	1	1												
TF 5036	2	1	1												
TF 5039	2	1	1												
TF 5042	2	1	1												
TF 5045	2	1	1												
TF 5048	2	1	1												
TF 5051	2	1	1												
TF 5054	2		1	1											
TF 5057	2		1	1											
TF 5060	2		1	1											
TF 5063	2		1	1											
TF 5066	2		1		1										
TF 5069	2		1			1									
TF 5072	2	1		1											
TF 5075	2	1		1											
TF 5078	2	1		1											
TF 5081	2	1			1										
TF 5084	2	1					1								
TF 5087	2	1				1									

SAMPLE

DA FORM 5051-R
DEC 81

Figure 2-1.

b. All entries must be legible. Administrative instructions for completing this form are as follows:

- **Block 1** - Enter name and rank (last name, first name, MI).
- **Block 2** - Enter date of birth (day, month, year).
- **Block 3** - Enter date of completion of last annual MTFE. Enter date of (revalidated) unit test flight orders.
- **Block 4** - Enter class number and graduation date of AMOC phase II (test flight), if applicable.
- **Block 5** - Enter date of initial or refresher MTFE and type of aircraft.
- **Block 6** - Enter date of additional MTFE and type of aircraft, (other than block 5), or enter refresher date if applicable.
- **Block 7** - Enter date of additional MTFE and type aircraft, (other than blocks 5 and 6), or enter refresher date if applicable.
- **Block 8** - Enter date of initial MTFE flight completed and type of aircraft.
- **Block 9** - Enter date of additional MTFE and type aircraft, (other than block 8).
- **Block 10** - Enter date of additional MTFE and type aircraft, (other than blocks 8 and 9).
- **Block 11** - Enter unit/organization- self-explanatory.
- **Block 12** - Enter TOE/TDA position (paragraph, line number and description).
- **Block 13** - Enter period covered (date MTP, MTF IP, MTF SIP or MTF UT is qualified to perform duties or the start of the new semiannual period to the end of his semiannual period as applicable).
- **Block 14** - Enter general test flight tasks that are performed.
- **Block 14a** - Required frequency (enter the number of iterations required for each task).
- **Block 14b** - In the remaining blocks, enter date and number of iterations accomplished semiannually. Recording the iterations in excess of requirement is not mandatory.

2-7. STANDARDIZATION MTF EVALUATION/TRAINING GRADESLIP.

a. The gradeslip is designed to provide a record of evaluations/training conducted at the unit level. It addresses those tasks and procedures required in the performance of maintenance test flights. It consists of three pages .

- DA Form 4507-R (Standardization Flight Evaluation/Training Gradeslip).
- Appropriate maintenance test flights maneuver gradeslip (para 3 of applicable aircraft chapter).
- DA Form 4507-2-R (Comment Slip).

b. The gradeslip (DA Form 4507-R) represents an important tool in the attainment of standardization and quality control and it should be filled out correctly and legibly as follows:

- *Date/examinee/evaluator blocks.* These blocks must be completed each time the gradeslip is used. Required entries are self-explanatory.
- *Total instructor pilot hours.* Total IP hours, fixed wing (FW) and/or rotary wing (RW), must be entered only for IP/SIP evaluation/ training flights.
- *Total flight time.* Strike out (evaluation) or (training), as applicable, and enter flight time today at the completion of the evaluation/training flight. The cumulative time block is to be used for transition training or when it is desirable to keep a ready reference of accrued training time.
- *Purpose of flight.* Strike out the statement which does not apply. Check the other block and write in MTF. Then state the type aircraft in which the evaluation/training was performed and indicate that the flight was conducted during daylight hours.
- *Evaluator recommendations.* Check the appropriate combination of blocks and indicate that a comment slip is attached, if applicable. Although all tasks/procedures may have been graded satisfactory (S), additional training may be indicated with specific reference to a task/procedure.
- *Gradeslip completion.* Upon completion of the evaluation/training flight, debrief the examinee and write in "MTF" in the appropriate status blocks. Both the examinee and the evaluator will sign the DA Form 4507-R in the space provided. To complete the evaluation/training gradeslip, enter the overall grade for the flight based upon the following criteria:

  — During training flights, individual tasks/procedures may be graded unsatisfactory (U) without resulting in an overall grade of unsatisfactory.

  — The proficiency flight evaluation, when used to develop an individual's training program, may be ungraded (N).

  — During any evaluation flight, failure of any MTF task/procedure will result in an overall grade of unsatisfactory. **NOTE:** Upon reevaluation, as a minimum, the unsatisfactory tasks must be evaluated.

c. The maintenance test flight maneuver gradeslip should be carried in the cockpit during the evaluation/training flight. Upon completion of each task/procedure, the grade (GR) block should be marked either "S" or "U".

d. A comment, referencing the appropriate task/procedure from the MTF maneuver gradeslip should be entered on the comment slip (DA Form 4507-2-R) for any task/procedure graded unsatisfactory during the flight. Failure of any task/procedure during the MTFE will result in an overall grade of unsatisfactory. The comment slip will be attached to DA Form 4507-R.

CHAPTER 3

EVALUATION CONCEPTS AND GUIDELINES

3-1. GENERAL.

a. ***Purpose.*** This chapter describes the concept of evaluation and outlines the need for individual MTF personnel evaluations. These evaluations are used to:

- Conduct the hands-on portion of the MTFE.
- Provide the evaluation requirements for qualification as MTP, MTF UT, MTF IP, or MTF SIP.
- Assess the MTF standardization of MTF personnel as a portion of the US Army Aviation Flight Standardization Program.

b. ***Evaluation Principles.*** The extent to which these evaluations are of value depends upon adherence to rather fundamental principles; anything less, and they become a meaningless exercise. These principles are:

- The *evaluators* must be selected not only for their technical qualifications but also for their performance, their clearly demonstrated objectivity, and their ability to observe and provide constructive comment.
- The *method* in which the evaluation is conducted must be based on uniform objectives and standards. Most importantly, it must be consistent with the mission of the unit and in accordance with appropriate regulations, manuals, and SOPs.
- The *purpose* of the evaluation must be completely understood by all concerned and conducted in a manner that is purpose-oriented.
- *Cooperation* by all participants must be insured to guarantee fulfillment of the evaluation objectives.
- *Specific findings* must be produced by the evaluation for validation of training. All affected by the evaluation want and need to know what is being done wrong, what might be done better, and how improvements can be made. General comments do not always provide the direction and guidance essential to improvement. To the extent the evaluation pinpoints both strength and weakness, it can serve the purpose of which it was intended.

c. ***The MTFE Sequence.*** It is suggested that the evaluation sequence shown be followed as closely as possible, for it is an acceptable and time-proven method of evaluation. The sequence recommended has four phases:

- *Phase 1* - comprehensive briefing.
- *Phase 2* - oral examination.

- *Phase 3* - flight performance test.
- *Phase 4* - evaluation debriefing.

d. ***Grading Considerations.***

- *Oral.* Proficiency in the oral examination must be based upon the evaluator's assessment that the examinee possesses a working knowledge and understanding of the subject areas presented.

- *Flight test.* Each task presented in this field manual provides the grading consideration—standards of performance—to be met as a minimum. These standards are presented for the ideal situation and under prerequisites of the condition developed for each task. Deviations from the ideal during evaluation must be considered by the evaluator and appropriate adjustments made to the standards.

3-2. MTF PERSONNEL ANNUAL EVALUATION CONCEPT.

a. ***General.*** The MTFE will be performed to coincide with the individual's annual aviator proficiency and readiness test (AAPART) but *only* after *successfully* completing the hands-on performance test portion of the AAPART. The MTFE is designed to measure the MTP's conformance to maintenance test flight standardized procedures. This evaluation must be completed annually for the MTP to remain on test flight orders. The unit commander is responsible for administering the MTFE to those individuals he has appointed MTF IPs, MTF UTs and MTPs. Results of the evaluation will be recorded in the aviator's IFTF.

NOTE: The AAPART standardization flight will not be combined with any MTFE or training flight. Each ride is separate and requires separate consideration.

b. ***MTFE Failures.*** Satisfactory/unsatisfactory gradeslips will be issued at the completion of each evaluation. The gradeslip will be posted in the aviator's IFTF. When an individual receives an unsatisfactory grade, the evaluator must recommend to the commander the appropriate action to correct the deficiency.

c. ***Unit Flight Test Order.*** Commanders will designate, on orders, MTPs who have successfully completed the MTFE based on the recommendation from the MTF IP. Duty appointment will be completed annually, and entered on block 3, DA Form 5051-R.

3-3. MTP EVALUATION.

a. ***General.*** This evaluation will be conducted to determine the examinees's ability to perform the duties of MTP. The recommended procedure for conducting the MTP flight evaluation is for the evaluator to assume the role of copilot, while allowing the examinee to function as the MTP. The evaluation should be administered for initial designation as an MTP and at periodic intervals in accordance with appropriate regulations. The evaluation sequence contains tasks/procedures used in the conduct of MTFs.

b. ***Evaluation Sequence.*** Times shown are general guides. The evaluator is the final authority as to the length of each phase of of the evaluation.

(1) Phase 1 - Introduction (00:10 average time).

- Introduce yourself to the examinee.
- Verify that the examinee meets all prerequisites for an MTP.
- Insure that the examinee has all required equipment for the flight.
- Confirm the purpose of the flight evaluation with the examinee and explain the method of conducting the evaluation. The evaluator will discuss the standards and criteria to be used.

(2) Phase 2 - Oral examination (01:00 average time). The examinee must correctly respond to at least four topics from each of the following major subject areas.

- *Regulations and publications:*
  - Test flight weather requirements.
  - Local airspace usage (test flight).
  - Publications required in aircraft.
  - Maintenance test flight forms and records.
- *Operating limitations:*
  - Engine overspeeds.
  - Rotor overspeeds.
  - Power limitations.
  - Temperature limitations.
  - Pressure limitations.
  - Airspeed limitations.
  - Turbine engine analysis check (TEAC).
  - Weight and balance computations.
  - Notes, cautions, and warnings in MTF manual.
  - Aircraft system operations.
- *Troubleshooting.*
  - Preflight.
  - Cockpit checks.
  - Engine start.
  - Instrument indications.
  - Electrical system.
  - Caution panel indications.
  - Power plant.
  - Power train system.

— Hydraulic system.

— Flight controls.

— Vibrations.

— Communications/navigational equipment.

(3) Flight performance test (03:00 average time).

• *The flight evaluation brief.*

— Explain the flight evaluation procedure.

— Tell the examinee which tasks he will be required to perform.

— Explain procedures for transfer of controls.

— Explain procedures in the event of an actual emergency.

— Answer any questions regarding conduct of the evaluation.

• *Preflight, engine start, and run-up procedures.*

— The applicable MTF checklist will be used.

— During the preflight inspection, the examinee will be required to properly identify a minimum of four components of the aircraft and discuss their functions and serviceability criteria.

— The examinee will start and run up the aircraft as outlined in the applicable MTF checklist.

• *Flight maneuvers.* All tasks listed in the appropriate aircraft chapter of this FM must be performed.

• *Engine shutdown.* The examinee will perform the engine shutdown in accordance with applicable MTF checklist.

(4) Debriefing (00:30 average time).

• Through the use of a gradeslip, critique the examinee's performance. Tell the examinee of his strengths and weaknesses noted during the evaluation. Offer recommendations for improvement if required. Tell the examinee if he passed or failed the evaluation.

• Complete the gradeslip in accordance with paragraph 2-7 of this FM.

3-4. MTF UNIT TRAINER FLIGHT EVALUATION.

This evaluation will consist of a complete MTP evaluation with special emphasis placed on ability to teach MTP duties. The evaluation will be administered when the examinee is seeking initial designation as an MTF UT and at periodic intervals according to the guidelines in this chapter. The flight portion should insure that the examinee can safely and effectively perform as an MTF UT. The evaluation flight should be conducted with the MTF UT in the crew position normally occupied when performing MTF UT duties.

3-5. MTF INSTRUCTOR PILOT FLIGHT EVALUATION.

This evaluation will consist of a complete MTP evaluation with an additional requirement to determine the examinee's ability to instruct and evaluate MTP tasks. The

evaluation will be administered when the examinee is seeking initial designation as an MTP IP and at periodic intervals according to the guidelines in this chapter. The recommended procedure for conducting this evaluation is for the evaluator to assume the role of the MTP performing MTF tasks, while the examinee functions as an MTF IP conducting an MTP evaluation.

3-6. MTF STANDARDIZATION INSTRUCTOR PILOT FLIGHT EVALUATION.

This evaluation will consist of a complete MTP evaluation with an additional requirement to determine the examinee's flight proficiency, knowledge and application of effective teaching methods, and ability to instruct and perform and evaluate MTP tasks. It will be administered when the examinee is seeking initial designation as an MTP SIP and at periodic intervals according to the guidelines in this chapter. The recommended procedure for conducting this evaluation is for the evaluator to assume the role of the MTF IP performing MTFE tasks, while the examinee functions as an MTF SIP.

> **Note: Because of the highly technical nature of the MTF procedures and the contrast between MTF and contact flight instructional and evaluation criteria, dual utilization of individuals qualified as both contact IPs and MTF IPs is discouraged.**

CHAPTER 4

OBSERVATION HELICOPTER MAINTENANCE TEST PILOT TASKS

4-1. GENERAL.

This chapter contains the observation helicopter test pilot tasks and their conditions, standards, and descriptions. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and the MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be submitted as directed in the preface of this manual.

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

4-2. OH-58 MAINTENANCE TEST PILOT TASK LIST.

TASK	TASK TITLE
TF 4400	Perform Preflight Inspection
TF 4405	Perform Before-Starting Engine Checks
TF 4410	Perform Starting Engine Checks
TF 4415	Perform Engine Run-up Checks
TF 4420	Perform Before-Takeoff Check
TF 4425	Perform Baseline or Normal Engine Health Indicator Test (HIT) as Required
TF 4430	Perform Takeoff to a Hover
★ TF 4431	Perform Hover Power Check
TF 4432	Perform Hovering Turns
★ TF 4433	Perform Primary Directional Control Check (C Only)
TF 4434	Perform Sideward Flight
TF 4436	Perform Forward and Rearward Hovering Flight
TF 4440	Perform Pylon Isolation Mount Check
TF 4445	Perform Power Cylinder Check
TF 4450	Perform Engine Response Check
TF 4465	Perform Control Rigging Check
TF 4470	Perform Autorotative RPM Check
★ TF 4472	Perform Engine Performance Check
TF 4475	Perform Hydraulics Off Check
TF 4480	Perform Out-Of-Ground Effect (OGE) Hover
TF 4485	Perform 70 KIAS-15 PSI (A) or 16% (C) Descent
TF 4487	Perform Vibration Analysis During Increasing Airspeeds
TF 4490	Perform 2:1 Vertical Vibration Check
TF 4492	Perform Flight Instrument Check
TF 4494	Perform Communication and Navigation Equipment Check
TF 4495	Perform After-Landing and Engine Shutdown Checks

★ 4-3. OH-58 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (OH-58)

For use of this form see FM 55-44 The proponent agency is TRADOC.

a. NO.	b. MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	S
2	BEFORE STARTING ENGINE CHECKS	S
3	STARTING ENGINE CHECKS	S
4	ENGINE RUN-UP CHECKS	S
6	BEFORE-TAKEOFF CHECK	S
6	BASELINE OR NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
7	TAKEOFF TO A HOVER	S
8	HOVER POWER CHECK	S
9	HOVERING TURNS	S
10	PRIMARY DIRECTIONAL CONTROL CHECK (C ONLY)	S
11	SIDEWARD FLIGHT	S
12	FORWARD AND REARWARD HOVERING FLIGHT	S
13	PYLON ISOLATION MOUNT CHECK	S
14	POWER CYLINDER CHECK	S
15	ENGINE RESPONSE CHECK	S
16	BEFORE-TAKEOFF CHECK	S
17	CONTROL RIGGING CHECK	S
18	AUTOROTATIVE RPM CHECK	S
19	ENGINE PERFORMANCE CHECK	S
20	HYDRAULICS OFF CHECK	S
21	OUT-OF-GROUND EFFECT (OGE) HOVER	S
22	70 KIAS-15 PSI (A) OR 16% (C) DESCENT	S
23	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	S
24	2:1 VERTICAL VIBRATION CHECK	S
26	FLIGHT INSTRUMENT CHECK	S
26	COMMUNICATION AND NAVIGATION EQUIPMENT CHECK	S
27	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

SAMPLE

NOTE: ITEMS 28 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.

DA FORM 5051-1-R
Dec 82

EDITION OF DEC 81 IS OBSOLETE.

4-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. ***Task Number and Title.*** Each task listed in this chapter has been identified by a number and a title which corresponds to the task list in paragraph 4-2.

b. ***Condition.*** The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance requirement.

c. ***Standard.*** The standard describes the degree of proficiency or standard of performance to which the task must be performed.

d. ***Description.*** The description is a written explanation of how the task should be accomplished to meet the standards.

e. ***References.*** References are shown that further amplify each task.

4-5. OH-58 MAINTENANCE TEST PILOT TASKS.

TASK: TF 4400

TASK: Perform preflight inspection.

CONDITION: In an OH-58A/C helicopter prior to flight.

STANDARDS:

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

★ **REFERENCES:**

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-CL

TM 55-1520-235-MTF

TASK: Perform before-starting engine checks.

CONDITION: In an OH-58A/C helicopter.

★ **STANDARDS:**

1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ **DESCRIPTION:** Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the before-starting engine checks.

★ **REFERENCES:**

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: TF 4410

TASK: Perform starting engine checks.

CONDITION: In an OH-58A/C helicopter.

★ **STANDARDS:**

1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ **DESCRIPTION:** Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the starting engine checks.

★ **REFERENCES:**

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: Perform engine run-up checks.

CONDITION: In an OH-58A/C helicopter.

★ **STANDARDS:**

1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ **DESCRIPTION:** Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the engine run-up checks.

★ **REFERENCES:**

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TM 55-1520-231-23

TM 55-1520-241-23

TASK: TF 4420

TASK: Perform before-takeoff check.

CONDITION: In an OH-58A/C helicopter.

★ **STANDARDS:**

1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ **DESCRIPTION:** Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the before-takeoff check.

★ **REFERENCES:**

AR 95-1

TM 55-1520-228-MTF

TM 55-1520-228-23-series

TM 55-1520-235-MTF

TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In an OH-58A/C helicopter.

★ **STANDARDS:**

1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TM 55-2840-231-23

TM 55-2840-241-23

TASK: TF 4430

TASK: Perform takeoff to a hover.

CONDITION: In an OH-58A/C helicopter; before-takeoff check completed, day, visual meteorological conditions (VMC).

STANDARDS:

1. Clear aircraft.
2. Insure that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent to a 3-foot hover.
4. Insure that apparent center of gravity is normal.
5. Insure that droop compensation is normal.
6. See statement #1.

★ **DESCRIPTION:** Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note apparent center of gravity is normal, and no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed is normal. Hovering into the wind, note cyclic and pedal positions normal for conditions.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: Perform hover power check.

CONDITION: In an OH-58A/C helicopter, with takeoff to a hover check completed, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Insure aircraft is at a 3-foot stabilized hover.
3. Insure aircraft is headed into the wind.
4. Record required readings.
5. Insure torque is in agreement with performance planning card (PPC).
6. See statement #1.

DESCRIPTION: While at a stabilized 3-foot hover into the wind, record torque, time over target (TOT), and N1; determine readings are within normal limits. Torque must be compared with performance planning card. Check parking area for indication of leaks. Hover to test flight hover area.

REFERENCES:

TM 55-1520-228-10

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-10

TM 55-1520-235-MTF

TM 55-2840-231-23

TM 55-2840-241-23

TASK: TF 4432

TASK: Perform hovering turns.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Maintain 3-foot hover.
5. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

★ TASK: TF 4433

TASK: Perform primary directional control check (C only).

CONDITION: In an OH-58C helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Maintain 3-foot stabilized hover.
3. Maintain aircraft heading into the wind.
4. Insure primary direction control switch in proper position.
5. Note pedal control.
6. See statement #1.

DESCRIPTION: Increase collective with pitch with aircraft heading into the wind until a 3-foot hover is attained. Check controllability of tail rotor by making pedal turns 90° left and right. Land aircraft; engage primary directional control system. Note disengage light out. Reset and note jam light out.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-235-10

TM 55-1520-235-MTF

TASK: TF 4434

TASK: Perform sideward flight.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and head aircraft into the wind.
4. Note cyclic response.
5. Maintain 3-foot above ground level (AGL) altitude.
6. Limit ground speed to 5 knots.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight, noting that no excessive inputs are required and that the desired aircraft response is achieved. Neutralize cyclic; aircraft should drift to a stop.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: Perform forward and rearward hovering flight.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform forward and rearward hovering flight at 5-foot AGL.
3. Head aircraft into the wind for forward hovering flight.
4. Turn aircraft tail into the wind for rearward.
5. Note cyclic response.
6. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: TF 4440

TASK: Perform pylon isolation mount check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Stabilize hover at 3 feet.
2. Head aircraft into the wind.
3. Maintain appropriate altitude.
4. Induce pylon rock.
5. See statement #1.

DESCRIPTION: Move the cyclic fore and aft, not to exceed 3 to 4 inches, at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Note that vibrations should start to dampen out after three to five cycles. Note that no abnormal vibrations or engine surges occur.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: Perform power cyclinder check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Complete copilot/observer briefing.
2. Head aircraft into the wind.
3. Maintain 10-foot hover.
4. Perform power cylinder check.
5. See statement #1.

DESCRIPTION: Move the cyclic smoothly approximately 6 inches either side of center along a 45° line from left rear to right forward quadrant several times. Note that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: TF 4450

TASK: Perform engine response check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Insure that altitude does not exceed 25 feet.
3. Note engine response.
4. See statement #1.

★ **DESCRIPTION:** From a stabilized hover, make a positive application of collective pitch (increase in N1 should be noted in less than 1 second); then reduce collective before excessive altitude is gained. Climb should not exceed 25 feet. Engine should respond smoothly and rapidly.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TM 55-2840-231-23

TM 55-2840-241-23

NOTE: Perform before-takeoff check (Task 4420) before continuing.

TASK: Perform control rigging check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Turn force trim on.
3. Maintain 100 KIAS or as adjusted for atmospheric conditions.
4. Maintain torque at 60 psi for A model, 65 percent for C model.
5. Maintain aircraft in trim.
6. Note cyclic and pedal positions.
7. See statement #1.

★ **DESCRIPTION:** Maintaining appropriate airspeed, torque and trim, note cyclic nearly centered and right pedal is 1 to 2 inches forward. Relax pedal pressure and note pedal response.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: TF 4470

TASK: Perform autorotative RPM check.

★ **CONDITION:** In an OH-58A/C helicopter, day, VMC.

★ **STANDARDS:**

1. Maintain altitude sufficient to allow power recovery prior to 500 feet AGL.
2. Maintain 55 KIAS.
3. Insure that suitable landing area is within gliding distance.
4. Correct autorotation entry procedure.
5. Note N1, trim, vibrations, and rotor RPM.
6. Correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 55 KIAS; smoothly lower collective to full down position noting that main rotor does not overspeed. Retard throttle to engine idle. Note N1 stabilized at engine idle, aircraft in trim, sufficient right pedal remains, no unusual vibrations, and rotor stabilized at appropriate RPM. Perform power recovery and establish a definite climb.

★ **REFERENCES:**

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

★ TASK: TF 4472

TASK: Perform engine performance check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Determine that engine performance check is required.
2. Head aircraft into wind.
3. Maintain cruise flight at selected altitude of 1,500 feet AGL or above.
4. Establish and maintain approximately a 70 KIAS climb.
5. Insure engine limitations are not exceeded.
6. Record appropriate readings at 1,000 feet above selected altitude.
7. Analyze engine performance.
8. See statement #1.

DESCRIPTION: When an engine performance check is required; the test altitudes and required torque valve will be computed before performing the check. Establish normal cruise flight at selected altitude of 1,500 feet AGL or above. Set altimeter to 29.92. Insure all bleed air and nonessential electrical items are turned off. Initiate a climb at approximately 70 KIAS by smoothly increasing collective until the maximum limit of either TOT, N1 speed or torque is achieved. As aircraft passes through 1,00 feet above the selected cruise altitude with engine instruments stabilized, record readings. Determine if readings are within limits and that the required torque is available before continuing test flight.

REFERENCES:

TM 55-1520-228-MTF

TM 55-1520-228-10

TM 55-1520-235-MTF

TM 55-1520-235-10

TM 55-2840-231-23

TM 55-2840-248-23

TASK: TF 4475

TASK: Perform hydraulics off check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Maintain 70 KIAS.
3. Complete copilot/observer briefing.
4. Perform hydraulics off check.
5. See statement #1.

DESCRIPTION: Maintain 70 KIAS; turn hydraulic boost switch off. Check cyclic control forces normal for conditions. Increase and decrease collective and check that at least 76 psi torque up and 16 psi torque down (83 percent torque up and 17 percent torque down for C model) can be reached without excessive pressures. Turn hydraulic boost switch on.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Reduce KIAS to zero.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, reduce airspeed rearward to zero while maintaining altitude. The aircraft should drift at current wind velocity when zero airspeed is attained. Check vibration levels within tolerances and increase KIAS to 70.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

★ **NOTE: Task is required as part of evaluation.**

TASK: TF 4485

★ **TASK:** Perform 70 KIAS- 15 PSI (A) or 12 percent (C) descent.

CONDITION: In an OH-58A/C helicopter, day, VMC.

★ **STANDARDS:**

1. Maintain 70 KIAS straight and level flight.
2. Maintain altitude IAW local directives.
3. Perform 70 KIAS - 15 psi (A) or 12 percent (C) descent.
4. Note vibration level.
5. See statement #1.

★ **DESCRIPTION:** While flying straight and level at 70 KIAS, note vibration level. Maintain 70 KIAS and reduce power to 15 psi (A) or 12 percent (C) torque. Note change in vibration level. Reestablish 70 KIAS straight and level flight.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain 70 KIAS.
2. Maintain altitude IAW local directives.
3. Increase airspeed in 10 knot increments.
4. Note change in vibration level.
5. Compute VNE.
6. See statement #1.

DESCRIPTION: Maintaining straight and level flight, slowly increase from 70 KIAS to VNE in 10 knot increments unless vibrations become severe. Note any changes in vibration level. Reestablish normal flight.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: TF 4490

TASK: Perform 2:1 vertical vibration check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Maintain 80 to 90 KIAS.
3. Perform 2:1 vertical vibration check.
4. Note change in vibration level.
5. See statement #1.

DESCRIPTION: Maintain 80 to 90 KIAS and perform 30° left and right level banks and small cyclic dives and climbs. Note 2:1 vibration level.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: Perform flight instrument check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Check flight instruments.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes checking performance of all installed flight instruments.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: TF 4494

TASK: Perform communication and navigation equipment check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Maintain airspeed as required.
3. Check all installed avionics equipment.
4. See statement #1.

DESCRIPTION: Check operation of all installed avionics equipment as indicated in the appropriate publication.

★ **REFERENCES:**

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In an OH-58A/C helicopter, day, VMC.

★ **STANDARDS:**

1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the after-landing and engine shutdown checks.

★ **REFERENCES:**

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-MTF

CHAPTER 5

UTILITY HELICOPTER MAINTENANCE TEST PILOT TASKS

5-1. GENERAL.

This chapter contains the utility helicopter maintenance test pilot tasks, and their conditions, standards, and descriptions. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be immediately submitted as directed in the preface of this manual.

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

5-2. UH-1 MAINTENANCE TEST PILOT TASK LIST.

TASK	TASK TITLE
TF 5003	Perform Preflight Inspection
TF 5006	Perform Starting Engine Checks
TF 5009	Perform Engine Start and Run-up Checks
TF 5012	Perform Baseline or Normal Engine Health Indicator Test (HIT) as Required
TF 5015	Perform Takeoff to a Hover
TF 5018	Perform Hovering Turns
TF 5021	Perform Sideward Flight
TF 5024	Perform Forward and Rearward Hovering Flight
TF 5027	Perform Pylon Mount Check
TF 5030	Perform Torquemeter Check
TF 5033	Perform Engine Response Check
TF 5036	Perform Power Cylinder Check
TF 5039	Perform Low-RPM Hover
TF 5042	Perform Manual Throttle Operations, Emergency Governor Mode
TF 5045	Perform Before-Takeoff Check
TF 5048	Perform Takeoff and Climb Checks
TF 5051	Perform Level Off Check
TF 5054	Perform Control Rigging Check
TF 5057	Perform Autorotative RPM Check
★ TF 5060	Perform Hydraulics Off Check (UH-1B, D, and H)
TF 5063	Perform Engine Topping Check
TF 5066	Perform Stabilizer Bar Check
TF 5069	Perform Out-Of-Ground Effect (OGE) Hover
TF 5072	Perform 70-Knot 10 PSI Descent
TF 5075	Perform Vibration Analysis During Increasing Airspeeds

TF 5078 ..... Perform Cyclic Rigging Check (UH-1B, D, and H)
TF 5081 ..... Perform Flight Instruments Check
TF 5084 ..... Perform Communication and Navigation Equipment Check
TF 5087 ..... Perform After-Landing and Engine Shutdown Checks

★ 5-3. UH-1 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (UH-1)

For use of this form see FM 55-44 The proponent agency is TRADOC.

a NO.	b MANEUVER/PROCEDURE	c GR
1	PREFLIGHT INSPECTION	S
2	STARTING ENGINE CHECKS	S
3	ENGINE START AND RUN-UP CHECKS	S
4	BASELINE OR NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
5	TAKEOFF TO A HOVER	S
6	HOVERING TURNS	S
7	SIDEWARD FLIGHT	S
8	FORWARD AND REARWARD HOVERING FLIGHT	S
9	PYLON MOUNT CHECK	S
10	TORQUEMETER CHECK	S
11	ENGINE RESPONSE CHECK	S
12	POWER CYLINDER CHECK	S
13	LOW-RPM HOVER	S
14	MANUAL THROTTLE OPERATIONS, EMERGENCY GOVERNOR MODE	S
15	BEFORE-TAKEOFF CHECK	S
16	TAKEOFF AND CLIMB CHECKS	S
17	LEVEL OFF CHECK	S
18	CONTROL RIGGING CHECK	S
19	AUTOROTATIVE RPM CHECK	S
20	HYDRAULICS OFF CHECK (UH-1B, D & H)	S
21	ENGINE TOPPING CHECK	S
22	STABILIZER BAR CHECK	S
23	OUT-OF-GROUND EFFECT (OGE) HOVER	S
24	70-KNOT 10 PSI DESCENT	S
25	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	S
26	CYCLIC RIGGING CHECK (UH-1B, D & H)	S
27	FLIGHT INSTRUMENTS CHECK	S
28	COMMUNICATION AND NAVIGATION EQUIPMENT CHECK	S
29	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

NOTE ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-2-R Dec 82 EDITION OF DEC 81 IS OBSOLETE.

5-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. ***Task Number and Title.*** Each task listed in this chapter has been identified by a number and a title which corresponds to the task list in paragraphs 5-2a for the UH-1 and 5-2b for the UH-60.

b. ***Condition.*** The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance environment.

c. ***Standards.*** The standards describe the degree of proficiency or standard of performance to which the task must be performed.

d. ***Description.*** The description is a written explanation of how the task should be accomplished to meet the standards.

e. ***References.*** References are shown that further amplify each task.

5-5. UH-1 MAINTENANCE TEST PILOT TASKS.

TASK: TF 5003

TASK: Perform preflight inspection.

CONDITION: In a UH-1 helicopter prior to flight.

STANDARDS:

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

★ **REFERENCES:**

AR 95-1

TM 55-1520-210-CL

TM 55-1520-220-CL

TM 55-1520-210-10

TM 55-1520-220-10

TASK: Perform starting engine checks.

CONDITION: In a UH-1 helicopter prior to starting engine.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219-MTF to perform the starting engine checks.

REFERENCES:

AR 95-1

TM 55-1500-219-MTF

TASK: TF 5009

TASK: Perform engine start and run-up checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219 MTF to perform the engine start and run-up checks.

★ **REFERENCES:**

AR 95-1

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23 series

TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In a UH-1 helicopter; before-takeoff check complete.

STANDARDS:

1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-2840-229-23-1/-2

TASK: TF 5015

TASK: Perform takeoff to a hover.

CONDITION: In a UH-1 helicopter; before-takeoff check complete, day, (VMC).

STANDARDS:

1. Clear aircraft.
2. Insure that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent to a 3-foot hover.
4. Note that apparent center of gravity is normal.
5. Note that droop cam operation is normal.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed remains constant within ± 40 RPM. Hovering into the wind, note cyclic nearly centered, and pedal position normal. Move off hover pad and check ground for oil spots which could indicate leakage.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: Perform hovering turns.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Maintain appropriate hover altitude.
5. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: TF 5021

TASK: Perform sideward flight.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and head aircraft into the wind.
4. Note cyclic response.
5. Maintain appropriate altitude.
6. Note that hover speed is consistent with autorotational capabilities.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight noting that no excessive inputs are required and that the desired aircraft response is achieved.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: Perform forward and rearward hovering flight.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform forward and rearward hovering flight.
3. Head aircraft into the wind for forward hovering flight.
4. Turn aircraft tail into the wind for rearward hovering flight.
5. Note cyclic response.
6. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Stabilize at a minimum 5-foot hover. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: TF 5027

TASK: Perform pylon mounts check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Stabilize hover.
2. Head aircraft into the wind.
3. Maintain appropriate altitude.
4. Induce pylon rock.
5. Correctly determine malfunction or discrepancies and apply corrective action and troubleshooting procedures.

DESCRIPTION: Move the cyclic fore and aft 3 to 4 inches at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Bumping should dampen out after four to five cycles. Note that no abnormal vibrations or engine surges occur.

REFERENCE:

TM 55-1500-219-MTF

TASK: Perform torquemeter check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ **STANDARDS:**

1. Stabilized hover at 5 feet.
2. Head aircraft into wind.
3. Maintain appropriate altitude.
4. Note torque indication.
5. See statement #1.

DESCRIPTION: Note that torque indication is correct as predetermined from performance charts.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: TF 5033

TASK: Perform engine response check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ **STANDARDS:**

1. Head aircraft into the wind.
2. Clear aircraft left, right and overhead.
3. Make sure altitude does not exceed 50 feet.
4. Note engine response.
5. See statement #1.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch, then reduce collective before excessive altitude is gained. Climb should not exceed 50 feet. Engine should respond smoothly and rapidly.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TM 55-2840-229-23-1/-2

TASK: Perform power cylinder check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Complete copilot/observer briefing to include emergency procedure for induced control lockup.
2. Head aircraft into the wind.
3. Maintain appropriate altitude (10-foot minimum).
4. Perform power cylinder check.
5. See statement #1.

DESCRIPTION: Move the cyclic smoothly 6 to 8 inches along a 45° line from left rear to right forward quadrant several times, noting that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant. (Check UH-1C, M model by turning off one hydraulic system at a time.)

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: TF 5039

TASK: Perform low-RPM hover.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Maintain appropriate altitude.
3. Using governor increase/decrease switch, decrease N2 RPM to 6,000.
4. Perform hovering turns 45° left and right of initial heading.
5. Note controllability.
6. See statement #1.

DESCRIPTION: Decrease N2 RPM to 6,000 with governor increase/decrease switch while maintaining a stabilized hover. Check controllability at low RPM, control positions, and check antitorque controllability by performing 45° hovering turns. Increase RPM to 6,600.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: Perform manual throttle operations, emergency governor mode.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Use correct procedures to change governor to emergency mode.
2. Maintain RPM 6,400 ± 100.
3. Maintain positive aircraft control.
4. Note engine performance throughout maneuver.
5. Use correct procedure to change governor to automatic mode.
6. See statement #1.

DESCRIPTION: While on the ground, move throttle to flight idle and governor switch to emergency position. Carefully open throttle to 6,400 RPM and increase collective; maintain 6,400 RPM with throttle; stabilize at hover. Land aircraft, throttle to flight idle, governor switch to auto. Note N1 stabilized at flight idle and caution light out; increase throttle to full open 6,600 RPM.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TM 55-2840-229-23-1/-2

TASK: TF 5045

TASK: Perform before-takeoff check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ **DESCRIPTION:** Using the callout and confirmation method, use TM 55-1520-219-MTF to perform the before-takeoff check.

★ **REFERENCES:**

AR 95-1

TM 55-1500-219-MTF

TASK: Perform takeoff and climb checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain RPM 6,600.
2. Check systems.
3. Transponder (as required).

DESCRIPTION: Make normal takeoff climb at 60/70 knots. Note control positions normal, engine and transmission instruments for normal indications, and check for abnormal vibrations.

REFERENCES:

TM 55-1500-219-MTF

TASK: TF 5051

TASK: Perform level off checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain a predetermined altitude.
2. Check instruments.
3. Begin fuel consumption check.

★ **DESCRIPTION:** Climb to predetermined altitude. Maintain constant altitude, airspeed, and heading. Note engine oil pressure, engine oil temperature, transmission oil temperature and transmission oil pressure. Begin fuel consumption check.

REFERENCE:

TM 55-1500-219-MTF

TASK: Perform control rigging check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ **STANDARDS:**

1. Maintain airspace IAW local directives.
2. Force trim on.
3. Maintain airspeed of 90/100 knots.
4. Maintain torque at 30 psi.
5. Insure needle and ball are centered.
6. Note cyclic and pedal positions.
7. See statement #1.

★ **DESCRIPTION:** Maintain appropriate airspeed, torque, centered needle and ball, and note that the cyclic is nearly centered, and right pedal is 0.5 to 1 inch forward (pedals should be aligned on UH-1B, C, and M with symmetrical tail boom).

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: TF 5057

TASK: Perform autorotative RPM check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ **STANDARDS:**

1. Make sure a suitable landing area is within gliding distance.
2. Maintain airspeed at 60 KIAS.
3. Perform correct autorotation entry procedure.
4. Initiate autorotative descent at an altitude sufficient to allow power recovery at or above 500 feet AGL.
5. Note N1, trim, vibrations, and RPM.
6. Perform correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 60 knots and smoothly lower collective to full down position, noting that main rotor does not overspeed, and reduce throttle to flight-idle position. Note N1 has stabilized at flight-idle (68-72 percent), needle and ball are centered, sufficient right pedal remains, no unusual vibrations are present, and rotor has stabilized at appropriate RPM. Perform power recovery by smoothly increasing throttle to full open (note needles joined) and increase collective to a power setting that will establish a definite climb.

★ **REFERENCES:**

AR 95-1

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

★ **TASK:** Perform hydraulics off check. (UH-1B, D, and H only).

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Maintain airspeed at 60-90 knots.
3. Complete copilot/observer briefing.
4. Perform aircraft controllability check.
5. See statement #1.

DESCRIPTION: Have copilot/observer identify and turn off hydraulic control switch. Note that master caution and hydraulics off caution panel segment lights are lit, then reset master caution. Make turns to left and right. Decrease collective to 13 psi then increase collective to achieve 33 psi torque. Use pedals to maintain an in-trim condition then have copilot/observer return hydraulic control switch to on. Note that master caution and caution panel segment lights are off. Throughout the maneuver, notice that feedback forces are not excessive and that all control movements produce the desired results. Pay particular attention to cyclic forces required in the forward right quadrant.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5063

TASK: Perform engine topping check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Insure bleed-air heater and de-ice switches are off and one altimeter is set at 29.92.
2. Maintain airspeed of 60-90 knots.
3. Maintain altitude as required, not to exceed 10,000 feet.
4. Perform engine topping.
5. See statement #1.

★ **DESCRIPTION:** Set altimeter to 29.92 and establish 60-90 KIAS (not to exceed VNE). Adjust collective to achieve 40 psi climb. Note N1 and determine topping altitude. Continue climb at a normal rate until 500 feet prior to topping altitude is reached. Monitor N1, torque, and EGT to insure engine limits are not exceeded. Increase collective to droop N2 to 6,400 RPM. Maintain 6,400 RPM with collective and, while passing through the next 1,000-foot increment pressure altitude, record FAT, torque, N1, EGT, and PA. Increase collective to droop N2 to 6,200 RPM and note that N1 has not increased. Smoothly reduce collective and resume normal flight; reset altimeter.

REFERENCES:

TM 55-1500-219-MTF

TM 55-2840-229-23-1/-2

TASK: Perform stabilizer bar check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ **STANDARDS:**

1. Force trim on.
2. Maintain altitude IAW local directives.
3. Maintain comfortable airspeed.
4. Perform turns left and right.
5. See statement #1.

DESCRIPTION: Maintaining level flight, apply cyclic and depress the force trim centering button until a 10° to 20° angle of bank is established. Simultaneously release the centering button and stop cyclic movement, then note the number of seconds required for the angle of bank to begin increasing. Following time should be 5 seconds ±1 second in each direction. Perform the check during left and right turns, force trim off.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: TF 5069

TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Reduce airspeed to "0" knots.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, reduce airspeed to zero while maintaining altitude. The aircraft should be facing into the wind and will be moving rearward at current wind velocity when zero airspeed is attained. After checking that vibration levels are within tolerance, and with sufficient left pedal, increase airspeed to 70 KIAS.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: Perform 70-knot 10 psi descent.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Fly aircraft at 70 knots, straight and level.
2. Maintain altitude IAW local directives.
3. Maintain speed at 70 knots and reduce power to 10 psi.
4. Note vibration level.
5. See statement #1.

DESCRIPTION: While flying straight and level at 70 knots, note vibration level. Maintain 70 knots and reduce power to 10 psi torque. Note any change in vibration level. Reestablish 70 knots straight and level flight.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: TF 5075

TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In a UH-1 helicopter, day, VMC.

★ **STANDARDS:**

1. Compute VNE.
2. Establish airspeed at 70 knots.
3. Maintain altitude IAW local directives.
4. Increase airspeed in 10 knot increments.
5. Note change in vibration level.
6. See statement #1.

DESCRIPTION: Maintaining straight and level flight, slowly increase airspeed from 70 knots up to VNE in 10-knot increments (unless vibrations get uncomfortably severe). Note any changes in vibration level. Note airspeed. At no time will VNE be exceeded for the existing conditions. Reestablish normal flight.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: Perform cyclic rigging check (UH-1B, D, and H).

CONDITION: In a UH-1 helicopter, day, VMC.

★ **STANDARDS:**

1. Compute VNE.
2. Turn force trim off.
3. Maintain altitude IAW local directive.
4. Increase airspeed to VNE.
5. Note cyclic position ONLY.
6. See statement #1.

★ **DESCRIPTION:** Maintain aircraft in trim, increase airspeed to VNE and note cyclic position. A minimum of 2 inches of forward cyclic should remain before contacting forward stop.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5081

TASK: Perform flight instruments check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Check flight instruments.
2. Maintain altitude IAW local directives.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes, checking performance of the following instruments: airspeed indicators, altitude indicators, altimeters, gyro compass, vertical speed, standby compass, turn and slip indicator, clock and instrument panel.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TASK: Perform communication and navigation equipment check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

Insure that all installed equipment is operationally checked.

DESCRIPTION: Check position of all installed equipment as indicated in the appropriate manuals.

★ **REFERENCES:**

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23-series

TM 55-1520-210-10

TM 55-1520-220-10

TASK: TF 5087

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219 MTF to perform the after-landing and engine shutdown checks.

REFERENCES:

AR 95-1

TM 55-1500-219-MTF

5-6. UH-60 MAINTENANCE TEST PILOT TASK LIST.

TASK	TASK TITLE
TF 5600	Perform Preflight Inspection.
TF 5605	Perform Before-Starting Engines Check
TF 5610	Perform Engine Start and Run-up Checks
TF 5615	Perform Before-Takeoff Check
TF 5620	Perform Ground Taxi
TF 5622	Perform Engine Health Indicator Test (HIT)/Anti-Ice
TF 5624	Perform Takeoff to a Hover
TF 5626	Perform SAS Check
TF 5630	Perform FPS Check
TF 5632	Perform Tail Rotor Backup Check
TF 5634	Perform Takeoff Check
TF 5636	Perform Cruise Checks at 80 KIAS
TF 5640	Perform Autorotation RPM Check
TF 5645	Perform Inflight Controllability Check
TF 5650	Perform Maximum Power Check
TF 5655	Perform Stabilator Check at 120 KIAS
TF 5660	Perform FPS Check During Flight
TF 5662	Perform Low Rotor RPM Check
TF 5666	Perform Vh Check
TF 5670	Perform Navigation and Communication Equipment Check
TF 5675	Perform After-Landing and Engine Shutdown Checks

5-7. UH-60 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (UH-60)

For use of this form see FM 55-44. The proponent agency is TRADOC

a. NO.	b MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	S
2	BEFORE-STARTING ENGINES CHECK	S
3	ENGINE START AND RUN-UP CHECKS	S
4	BEFORE-TAKEOFF CHECK	S
5	GROUND TAXI	S
6	ENGINE HEALTH INDICATOR TEST (HIT)/ANTI-ICE	S
7	TAKEOFF TO A HOVER	S
8	SAS CHECK	S
9	FPS CHECK	S
10	TAIL ROTOR BACKUP CHECK	S
11	TAKEOFF CHECK	S
12	CRUISE CHECKS AT 80 KIAS	S
13	AUTOROTATION RPM CHECK	S
14	INFLIGHT CONTROLLABILITY CHECK	S
15	MAXIMUM POWER CHECK	S
16	STABILATOR CHECK AT 120 KIAS	S
17	FPS CHECK DURING FLIGHT	S
18	LOW ROTOR RPM CHECK	S
19	Vh CHECK	S
20	NAVIGATION AND COMMUNICATION EQUIPMENT CHECK	S
21	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
35		
37		
38		
39		
40		

NOTE ITEMS 22 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-3-R
(Dec 81)

5-8. UH-60 MAINTENANCE TEST PILOT TASKS.

TASK: TF 5600

TASK: Perform preflight inspection.

CONDITION: In a UH-60 helicopter prior to flight.

★ **STANDARDS:**

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

★ **REFERENCES:**

AR 95-1

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TM 55-1520-237-23-CL

TASK: TF 5605

TASK: Perform before-starting engine checks.

CONDITION: In a UH-60 helicopter prior to starting engines.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform before-starting engine checks.

REFERENCES:

AR 95-1

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform engine start and run-up checks.

CONDITION: In a UH-60 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform the engine start and run-up checks.

REFERENCES:

AR 95-1

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5615

TASK: Perform before-takeoff check.

CONDITION: In a UH-60 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform the before-takeoff check.

REFERENCES:

AR 95-1

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform ground taxi.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Insure outside area is clear.
2. Remove chocks and tiedowns.
3. Secure doors.
4. Release parking brakes.
5. See statement #1.

DESCRIPTION: While performing ground taxi, the pilot and copilot should check their brakes independently. Check the tail wheel lock for operation. Taxi to test flight hover area.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5622

TASK: Perform engine health indicator test (HIT)/anti-ice.

CONDITION: In a UH-60 helicopter; before takeoff check is complete.

STANDARDS:

1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

★ **REFERENCES:**

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TM 55-2840-248-23

TASK: Perform takeoff to a hover.

CONDITION: In a UH-60 helicopter; before takeoff check completed, day, VMC.

★ **STANDARDS:**

1. Head aircraft into the wind.
2. Insure that cyclic, collective, and pedal control response is normal.
3. Perform gradual vertical ascent.
4. Note that apparent center of gravity is normal.
5. Maintain hovering altitude of 10 feet.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude. Hovering into the wind, note that cyclic is 1 inch forward of neutral, and left pedal is forward of neutral about 1 1/2 inches.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5626

TASK: Perform SAS check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Maintain minimum hovering altitude of 20 feet.
3. Head aircraft into the wind.
4. Insure that boost, SAS #1, and trim are ON.
5. Insure that SAS #2 and FPS are OFF.
6. Check controllability.
7. See statement #1.

DESCRIPTION: Move cyclic forward and aft to get 3° pitch attitude change. Attitude should return to trim within ±1°. Then move cyclic left and right to get a 5° to 7° roll attitude change. Attitude should return to trim within ±1°. Make a 20 percent torque change and observe heading response. Heading should not change more than 15°. Repeat check with SAS-2 engaged and SAS-1 off.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform FPS check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Head aircraft into the wind.
3. Maintain minimum hovering attitude of 20 feet.
4. Engage boost, SAS #1, SAS #2, trim FPS.
5. See statement #1.

DESCRIPTION: Hands off attitude retention in pitch and roll should be ± 1° (calm wind). Heading hold should be ± 2° introducing cyclic pulses 5° in pitch and 10° in roll. Helicopter should return to trim attitude with no more than one 3° overshoot. Transient heading hold with a 20 percent torque increase and return to original power setting. Heading should be ± 15° or original setting.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5632

TASK: Perform tail rotor backup check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Complete copilot briefing.
2. Head aircraft into the wind.
3. Maintain minimum hovering altitude of 20 feet.
4. See statement #1.

★ **DESCRIPTION:** Move tail rotor switch to BACKUP position. Hydraulic pressure to tail rotor should be within 1 to 3 seconds. After check is completed, place tail rotor switch in NORMAL position.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform takeoff check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Insure that copilot monitors and calls out stabilator indicator position versus airspeed.
3. See statement #1.

DESCRIPTION: During a normal takeoff, the stabilator should begin moving up at 30 KIAS and be passing through 20° at 60 KIAS. Also, during the climb, check the pilot's and copilot's airspeed indicators, vertical speed indicators, altimeter's horizontal situation, and magnetic compass.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5636

TASK: Perform cruise checks at 80 KIAS.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Stabilize at predetermined altitude.
2. Maintain speed of 80 knots.
3. See statement #1.

DESCRIPTION: After letting the instruments stabilize for 1 minute, record the readings which are listed in TM 55-1520-237-MTF.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform autorotation RPM check.

CONDITION: In a UH-60 helicopter at sufficient altitude for power recovering, 80 KIAS, day, VMC.

★ **STANDARDS:**

1. Determine check altitude. Altitude for power recovery 500 feet AGL or above.
2. Perform cruise flight at 80 KIAS.
3. Insure that flight path is clear.
4. Insure suitable force landing areas.
5. Set one altimeter to 29.92 in Hg.
6. Enter autorotation.
7. Record RPMR at check altitude.
8. Make power recovery (500 feet AGL or above).
9. See statement #1.

★ **DESCRIPTION:** Set one altimeter to 29.92, climb to check altitude and level off, maintain 80 KIAS after FAT has stabilized, record, then climb an additional 1,000 feet, level off, stabilize at 80 KIAS, retard number 1 ENG POWER CONT lever to IDLE and check engine stabilized at idle, and reduce collective slowly to fold down, maintaining 80 KIAS. Retard number 2 ENG POWER CONT lever to IDLE when passing through, check altitude, and record percent RPMR and fuel quantity. Advance number 1 and number 2 ENG POWER CONT levers to FLY detent, and make a power recovery.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5645

TASK: Perform in-flight controllability check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Level flight at 100 KIAS.
2. See statement #1.

★ **DESCRIPTION:** In level flight, check the position of the cyclic and antitorque pedals per TM 55-1520-237-MTF; also, check that airspeed indicators are within 5 KIAS of each other. Note any abnormal vibrations. Establish a steady state autorotational descent and verify that the stabilator position is between -3° to -7°.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform maximum power check.

CONDITION: In a UH-60 helicopter at predetermined pressure altitude and 110 KIAS, day, VMC.

★ **STANDARDS:**

1. Climb to predetermined pressure altitude.
2. Maintain 110 KIAS.
3. Insure ANTI-ICE and HEATER switches are off.
4. Perform MAXIMUM POWER CHECK using MTF manual.
5. Record data.
6. See statement #1.

DESCRIPTION: Maintain 110 KIAS, with one altimeter set at 29.92, and anti-ice and heater off. Perform maximum power check on one engine at a time, using procedures in TM 55-1520-237-MTF.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-6

TM 55-2840-248-23

TASK: TF 5655

TASK: Perform stabilator check at 120 KIAS.

CONDITION: In a UH-60 helicopter, day , VMC.

STANDARDS:

1. Perform level flight at 120 KIAS.
2. Trim aircraft.
3. See statement #1.

DESCRIPTION: During level flight at 120 KIAS, the stabilator position indicator pointer is -1° to +3°. Displace the trim ball one width to the right and insure stabilator position pointer is about 2° down from previously noted position. After the check, release the pedals and the trim ball should come within one-half a ball from center. Now displace the trim ball one ball width to the left, and the stabilator position pointer is 2° up from original trim position. After the check is completed, make 45° banked turns left and right with fixed collective and note that stabilator position pointer is about 1° down from original trim position.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform FPS check during flight.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Perform level flight at 120 KIAS.
2. Trim aircraft.
3. See statement #1.

DESCRIPTION: Perform the FPS check as outlined in TM 55-1520-237-MTF.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5662

TASK: Perform low rotor RPM check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Maintain 140 KIAS.
2. Maintain level flight.
3. Perform checks required by MTF manual.
4. See statement #1.

★ **DESCRIPTION:** Maintaining 140 KIAS, decrease ENG RPM switch to 96 percent RPMR. If low rotor RPM caution light and audio warning does not activate, lower collective slightly to activate. Increase ENG RPM switch to 100 percent RPMR; also, while at 140 KIAS, check airspeed indicators, vibration level, and that stabilator setting is in the -1° to +3° range.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform Vh check.

CONDITION: In a UH-60 helicopter, day, VMC.

★ **STANDARDS:**

1. Determine Vh speed.
2. Maintain level flight.
3. Insure that needle and ball are centered.
4. Do not exceed 100 percent torque or TGT limiting.
5. Perform checks required by MTF manual.
6. See statement #1.

★ **DESCRIPTION:** Increase airspeed and power to maintain level flight until 100 percent torque is obtained or TGT limiting. At Vh, check to see that at least 2 inches of distance exist from instrument panel to cyclic stick. Right pedal should not be over 1 inch forward of neutral; collective pitch control should not be against upper stop. Check that STAB POS indicator pointer is in the -1° to +3° range. Check for any abnormal vibrations.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-10

TM 55-1520-237-23-series

TASK: TF 5670

TASK: Perform navigation and communcation equipment check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Check navigation equipment.
2. Check communication equipment.
3. See statement #1.

DESCRIPTION: Check operation of all navigation and communication equipment installed as indicated in the appropriate manuals.

★ **REFERENCES:**

TM 55-1520-237-MTF

TM 11-1520-237-23-series

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a UH-60 helicopter, day,VMC.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform the after-landing and engine shutdown check.

REFERENCES:

AR 95-1

TM 55-1520-237-MTF

TM 55-1520-237-23-series

CHAPTER 6

ATTACK HELICOPTER MAINTENANCE TEST PILOT TASKS

6-1. GENERAL.

This chapter contains the attack helicopter maintenance test pilot tasks, and their conditions, standards, and description. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be submitted as directed in the preface of this manual.

NOTE: AH-1 Identification Index

G - AH-1G

M - AH-1 MOD

E - AH-1 ECAS

M/C - AH-1 modernized

B-540 - Bell main rotor blade

K-747 - Kaman main rotor blade

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

6-2. AH-1 MAINTENANCE TEST PILOT TASK LIST.

TASK	TASK TITLE
TF 6000	Perform Preflight Inspection
TF 6002	Perform Starting Engine Checks
TF 6004	Perform Engine Start and Run-up Checks
TF 6006	Perform Before-Takeoff Check
TF 6010	Perform Baseline or Normal Engine Health Indicator Test (HIT) as required
TF 6015	Perform Take off to a Hover
TF 6020	Perform Hovering Turns
TF 6022	Perform Yaw Channel Response

TF 6024 ..... Perform Sideward Flight
TF 6026 ..... Perform Forward Hovering Flight
TF 6030 ..... Perform Pylon Mount Checks - SCAS ON
TF 6035 ..... Perform Pylon Mount Checks - SCAS OFF
TF 6040 ..... Perform Torquemeter Check
TF 6042 ..... Perform Engine Response Check
TF 6044 ..... Perform Low-RPM Hover
TF 6046 ..... Perform Manual Throttle Operations, Emergency Governor Mode
TF 6048 ..... Perform Power Cylinder Check, Dual System Check
TF 6050 ..... Perform Power Cylinder Check, Hydraulics #1 System Check
TF 6052 ..... Perform Power Cylinder Check, Hydraulics #2 System Check
TF 6056 ..... Perform Control Rigging Check
TF 6060 ..... Perform Control Rigging Check - SCAS OFF
TF 6062 ..... Perform Autorotative RPM Check
TF 6064 ..... Perform Flight Instrument Check
TF 6066 ..... Perform Out-Of-Ground Effect (OGE) Hover
TF 6070 ..... Perform Cruise/Descent Check
TF 6075 ..... Perform Acceleration Check
TF 6080 ..... Perform "G" Loading Check
TF 6082 ..... Perform Communication and Navigation Equipment Check
TF 6084 ..... Perform Engine Topping Check
TF 6090 ..... Perform After-Landing and Engine Shutdown Checks

6-3. AH-1 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (AH-1)

For use of this form see FM 55-44. The proponent agency is TRADOC.

a. NO.	b. MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	S
2	STARTING ENGINE CHECKS	S
3	ENGINE START AND RUN-UP CHECKS	S
4	BEFORE-TAKEOFF CHECK	S
5	BASELINE OR NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
6	TAKE OFF TO A HOVER	S
7	HOVERING TURNS	S
8	YAW CHANNEL RESPONSE	S
9	SIDEWARD FLIGHT	S
10	FORWARD HOVERING FLIGHT	S
11	PYLON MOUNT CHECKS - SCAS ON	S
12	PYLON MOUNT CHECKS - SCAS OFF	S
13	TORQUEMETER CHECK	S
14	ENGINE RESPONSE CHECK	S
15	LOW-RPM HOVER	S
16	MANUAL THROTTLE OPERATIONS, EMERGENCY GOVERNOR MODE	S
17	POWER CYLINDER CHECK, DUAL SYSTEM CHECK	S
18	POWER CYLINDER CHECK, HYDRAULICS #1 SYSTEM CHECK	S
19	POWER CYLINDER CHECK, HYDRAULICS #2 SYSTEM CHECK	S
20	CONTROL RIGGING CHECK	S
21	CONTROL RIGGING CHECK - SCAS OFF	S
22	AUTOROTATIVE RPM CHECK	S
23	FLIGHT INSTRUMENT CHECK	S
24	OUT-OF-GROUND EFFECT (OGE) HOVER	S
25	CRUISE/DESCENT CHECK	S
26	ACCELERATION CHECK	S
27	"G" LOADING CHECK	S
28	COMMUNICATION AND NAVIGATION EQUIPMENT CHECK	S
29	ENGINE TOPPING CHECK	S
30	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

NOTE ITEMS 31 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-4-R
DEC81

6-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. ***Task Number and Title.*** Each task listed in this chapter has been identified by a number and a title which correspond to the task list in paragraph 6-2.

b. ***Condition.*** The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance requirement.

c. ***Standards.*** The standards describe the degree of proficiency or standard of performance to which the task must be performed.

d. ***Description.*** The description is a written explanation of how the task should be accomplished to meet the standards.

e. ***References.*** References are shown that further amplify each task.

6-5. AH-1 MAINTENANCE TEST PILOT TASKS.

TASK: TF 6000

TASK: Perform preflight inspection.

CONDITION: In an AH-1 helicopter prior to flight.

STANDARDS:

1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

REFERENCES:

AR 95-1

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6002

TASK: Perform starting engine check.

CONDITION: In an AH-1 helicopter prior to starting engine.

STANDARDS:

1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use TM 55-1520-244 MTF or TM 55-1520-236 MTF as applicable to perform the starting engine check.

REFERENCES:

AR 95-1

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6004

TASK: Perform engine start and run-up checks.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use TM 55-1520-244 MTF or TM 55-1520-236-MTF as applicable to perform the engine start and run-up checks.

REFERENCES:

AR 95-1

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6006

TASK: Perform before-takeoff check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use TM 55-1520-244-MTF or TM 55-1520-236-MTF as applicable to perform the before-takeoff check.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In an AH-1 helicopter; before-takeoff check is completed.

STANDARDS:

1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6015

TASK: Perform take off to a hover.

CONDITION: In an AH-1 helicopter, before-takeoff check complete, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Note that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent.
4. Note that apparent center of gravity is normal.
5. Note that droop cam operation is normal.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note apparent center of gravity normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed remains constant within ± 40 RPM (AH-1G, AH-1S (M)) or N2 stabilizes within 0.6 percent of previously set value (AH-1S (P), AH-1S (ECAS)). Hovering into the wind, note cyclic nearly centered, and pedal position normal.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform hovering turns.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Note flight instrument response normal.
5. Maintain appropriate hover altitude.
6. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction. Altitude indicator, turn and slip indicator, and compasses should respond normally.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6022

TASK: Perform yaw channel response.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Use MTF manual checklist.
2. Clear aircraft.
3. Head aircraft into wind.
4. Perform slight collective movement.
5. Note that SCAS maintains original heading.
6. See statement #1.

DESCRIPTION: With the aircraft faced into the prevailing wind and without moving pedals, increase collective slightly, noting SCAS tends to maintain nearly original heading. A comparison of SCAS functioning may be made as necessary by disengaging the yaw channel switch and repeating check.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform sideward flight.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and face aircraft into the wind.
4. Note cyclic response.
5. Maintain appropriate altitude.
6. Insure that hover speed is consistent with autorotational capabilities.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight, noting that no excessive inputs are required and that the desired aircraft response is achieved, then neutralize the cyclic. Aircraft should drift to a stop.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6026

TASK: Perform forward hovering flight.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform forward hovering flight.
3. Head aircraft into the wind.
4. Note cyclic response.
5. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform pylon mounts check - SCAS On.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Stabilize hover.
2. Head aircraft into the wind.
3. Engage SCAS.
4. Maintain appropriate altitude.
5. Induce pylon rock.
6. Correctly determine malfunction or discrepancies and apply corrective action and troubleshooting procedures.

DESCRIPTION: Move cyclic fore and aft as required (not to exceed 3 to 4 inches) to induce pylon rocking and to stabilize cyclic, then note the number of oscillations required for rocking to subside. Note any abnormal engine responses.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6035

TASK: Perform pylon mounts check-SCAS off.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Stabilize hover.
2. Head aircraft into the wind.
3. Disengage SCAS.
4. Maintain appropriate altitude.
5. Induce pylon rock.
6. Correctly determine malfunctions or discrepancies and apply corrective action and troubleshooting procedures.

DESCRIPTION: Disengage all SCAS channel switches. Move cyclic fore and aft as required (not to exceed 3 to 4 inches) to induce pylon rocking, stabilize cyclic, then note the number of oscillations required for rocking to subside. No significant variation between SCAS on and SCAS off; check should be evident. Note any abnormal engine responses. Land aircraft, REENGAGE SCAS.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform torquemeter check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Stabilize hover.
2. Head aircraft into wind.
3. Maintain appropriate altitude.
4. Note torque indication.
5. See statement #1.

DESCRIPTION: Note that torque indication is correct as predetermined from performance charts.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6042

TASK: Perform engine response check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Climb to an altitude not to exceed 25 feet.
3. Note engine response.
4. See statement #1.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch, then terminate maneuver by a smooth reduction of collective before excessive altitude is gained. Climb should not exceed 25 feet. Engine should respond smoothly and rapidly.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform low-RPM hover.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Maintain appropriate altitude.
3. With governor increase/decrease switch, decrease N2 RPM to 6,000 or 91 percent.
4. Perform hovering turn 45° left and right of initial heading.
5. Note controllability.
6. See statement #1.

DESCRIPTION: Increase N2 RPM to 6,000 (AH-1S M AH-1G) or 91 percent (AH-1S P, E, M/C ECAS) with governor increase/decrease switch while maintaining a stabilized hover. Check controllability of low RPM, control positions, and check antitorque controllability by performing 45° hovering turns. Increase linear actuator to operational RPM.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6046

TASK: Perform manual throttle operations, emergency governor mode.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Use correct procedures to change governor to emergency mode.
2. Maintain RPM 6,400 ± 100 (AH-1G, M, Mod).
3. Maintain RPM 97% ± 1% (AH-1S, P, E, M/C).
4. Maintain positive aircraft control.
5. Note engine performance throughout maneuver.
6. Use correct procedure to change over to automatic mode.
7. See statement #1.

DESCRIPTION: While on the ground, retard throttle to flight idle, and switch to emergency position. Smoothly advance throttle to 6,400 RPM (AH-1G, AH-1S, M) or 97 percent (AH-1S, P, E, M/C) then increase collective, maintaining RPM at stabilized hover. Land aircraft, retard throttle to flight idle position placing GOV SWITCH to AUTO. Note N1 stabilized at flight idle and caution light out. Advance throttle to operational RPM.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform power cylinder check, dual system check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Two qualified pilots are required.
2. Complete copilot briefing.
3. Head aircraft into the wind.
4. Maintain 10- to 15-foot altitude.
5. Perform power cylinder check.
6. See statement #1.

DESCRIPTION: Increase hovering altitude 10 to 15 feet; transfer control of the collective to copilot. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel, note normal unrestricted operation of controls, stabilize aircraft. Then smoothly move cyclic laterally through 6 to 8 inches of full travel. Note smooth operation, no control restrictions, stabilize aircraft.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6050

TASK: Perform power cylinder check, hydraulic #1 system check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Two qualified pilots are required.
2. Complete copilot briefing.
3. Head aircraft into the wind.
4. Maintain 10- to 15-foot altitude.
5. Perform power cylinder check.
6. See statement #1.

DESCRIPTION: Increase hovering altitude 10 to 15 feet, and transfer control of collective to copilot. Place HYD TEST SWITCH TO #1 SYS TEST POSITION, note illumination of MASTER CAUTION and HYD PRESSURE #2 caution segments, and stabilize aircraft. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel; note normal unrestricted operation of controls, then stabilize aircraft. Then smoothly move cyclic laterally through 6 to 8 inches of full travel. Note normal operation, no control restrictions, and stabilize aircraft.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

CAUTION: E, M/C power cylinder check to be accomplished only when suspected malfunctions exist (due to safety).

TASK: Perform power cylinder check, hydraulic #2 system check.

CONDITIONS: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Two qualified pilots are required.
2. Complete copilot briefing.
3. Head aircraft into the wind.
4. Maintain 10- to 15-foot altitude.
5. Perform power cylinder check.
6. See statement #1.

DESCRIPTION: Increase hovering altitude 10 to 15 feet and transfer control of collective to copilot. Place HYD TEST SWITCH TO #2 SYS TEST POSITION, note illumination of MASTER CAUTION and HYD PRESSURE #1 caution segments, and stabilize aircraft. Pedals should be stiff but manageable. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel, note controls normal and unrestricted except stiff pedals, stabilize aircraft. Then smoothly move cyclic laterally through 6 to 8 inches of full travel, controls normal and unrestricted except for stiff pedals, and stabilize aircraft. Transfer control of collective to pilot.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

CAUTION: E, M/C power cylinder check to be accomplished only when suspected malfunction exists (due to safety).

TASK: TF 6056

TASK: Perform control rigging check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Insure force trim is on.
3. Maintain airspeed of 100 knots.
4. Maintain torque at 25 psi (AH-1G, M).
5. Maintain torque at 45 percent (AH-1, M, E, M/C).
6. Center needle and ball.
7. Note cyclic and pedal positions.
8. See statement #1.

DESCRIPTION: Maintain appropriate airspeed, torque, in trim, and note the cyclic is nearly centered, pedals neutral ± 1/2-inch. Note force trim tends to hold aircraft altitude.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform control rigging check - SCAS off.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Insure force trim is off.
3. Disengage SCAS.
4. Maintain airspeed at 100 knots.
5. Maintain torque at 25 psi (AH-1G, M).
6. Maintain torque at 45 percent (AH-1, M, E, M/C).
7. Note cyclic and pedal positions.
8. See statement #1.

DESCRIPTION: Maintain appropriate airspeed, torque, in trim, and disengage all SCAS channel switches. Note the cyclic is nearly centered, pedals neutral ± 1/2 inch. Relax control pressures and note aircraft tends to fly straight and level. SCAS OFF stability should be normal, then reengage SCAS.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6062

TASK: Perform autorotation RPM check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain altitude sufficient to allow power recovery at or above 500 feet AGL.
2. Maintain airspeed at 80 knots.
3. Insure that suitable landing area is within gliding distance.
4. Use correct autorotation entry procedure.
5. Note N1, trim, vibrations, and RPM.
6. Correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 80 knots, then smoothly lower collective to full down position, noting that main rotor does not overspeed; retard the throttle to flight-idle position. Note that N1 has stabilized at flight-idle (68-72 percent), in trim, sufficient right pedal remains, there are no unusual vibrations, and rotor is stabilized at appropriate RPM. Perform power recovery by smoothly increasing throttle to full open (note needles joined) then increase collective to a power setting that will establish a definite climb.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform flight instruments check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Check flight instruments.
2. Maintain altitude IAW local directives.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes, checking performance of all installed flight instruments.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6066

TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Decrease airspeed to "0" knots.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, slow aircraft into wind to attain zero airspeed OGE hover while maintaining altitude. In OGE hover, aircraft will be moving rearward at current wind velocity when zero airspeed is attained. Note any one per revolution vibrations, then accelerate into forward flight.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform cruise descent check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain 80 knots straight and level flight.
2. Maintain altitude IAW local directives.
3. Maintain 80 knots; reduce power to 10 psi descent (AH-1G, M).
4. Maintain 80 knots; reduce power to 18 percent descent (AH-1, P, E, M/C).
5. Note vibration level.
6. See statement #1.

DESCRIPTION: Establish an 80-knot straight and level cruise, noting vibration intensity. Maintain 80 knots, then reduce power to 10 psi torque (AH-1G M) or 18 percent torque (AH-1, P, E, MC). Note any change in vibration intensity. Reestablish 80 knots straight and level flight.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

NOTE: Only performed on B-540.

TASK: TF 6075

TASK: Perform acceleration check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain airspeed at 80 knots.
2. Maintain altitude IAW local directives.
3. Increase airspeed in 10-knot increments.
4. Note change in vibration level.
5. Increase airspeed to 150 knots (130 knots AH-1S, P).
6. See statement #1.

DESCRIPTION: Smoothly increase airspeed to 150 knots (unless vibration intensity becomes excessive). Note any changes in vibration level and airspeed vibration intensity developed. Reestablish normal flight.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform "G" loading check.

CONDITIONS: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. "G" loading check not required when VIBREX is utilized.
2. Maintain altitude IAW local directives.
3. Head aircraft into the wind.
4. Perform normal dive.
5. Perform moderate "G" pullout.
6. Insure entry airspeed is 80 knots.

DESCRIPTION: Fly straight and level. At 80 KIAS, execute a normal dive into the wind, maintaining aircraft in trim. Accelerate to 130 KIAS, then perform moderate "G" pullout, noting any excessive vibrations. Return to cruise flight.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6082

TASK: Perform communication and navigation equipment check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARD:

Insure that all installed equipment is operationally checked.

DESCRIPTION: Check operation of all installed avionics equipment as indicated in the appropriate manuals.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: Perform engine topping check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Insure environmental control unit and de-ice switches are off and one altimeter is set at 29.92.
2. Maintain airspeed of 70 knots.
3. Maintain altitude as required, not to exceed 10,000 feet.
4. Perform engine topping.
5. See statement #1.

DESCRIPTION: Adjust collective to achieve 40 psi climb. Note N1 and determine topping altitude. Continue climb at a normal rate until topping altitude is reached. Increase collective to droop N2 to 6,400 RPM. Maintain 6,400 RPM with collective and, while passing through the next 1,000-foot increment pressure altitude, record FAT, torque, N1, EGT, and PA. Increase collective to droop N2 to 6,200 RPM and note that N1 has not increased. Smoothly reduce collective and resume normal flight. Reset altimeter.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

TASK: TF 6090

TASK: Perform after-landing and engine shutdown check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use TM 55-1520-244-MTF or TM 55-1520-236-MTF to perform the after-landing and engine shutdown checks.

REFERENCES:

TM 55-1520-221-23-1/-2

TM 55-1520-234-23-1/-2

TM 55-1520-236-MTF

TM 55-1520-236-23-series

TM 55-1520-244-MTF

CHAPTER 7

CARGO HELICOPTER MAINTENANCE TEST PILOT TASKS

7-1. GENERAL.

This chapter contains the cargo helicopter maintenance test pilot tasks, their conditions, standards, and description. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be submitted as directed in the preface of this manual.

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

7-2. CH-47 MAINTENANCE TEST PILOT TASK LIST.

TASK	TASK TITLE
TF 7005	Perform Preflight Inspection
TF 7010	Perform Before-Starting Engine Checks
TF 7015	Perform Engine Start/Run-up Procedure
TF 7020	Perform Before-Takeoff Checks
TF 7022	Perform Lift-Off Check
TF 7024	Perform Engagement Error Check
TF 7026	Perform SAS Function Check
TF 7030	Perform PSAS Check (C Model Only)
TF 7032	Perform Control Position Check
TF 7034	Perform Torque Differential Check
TF 7036	Perform Droop Eliminator Check
TF 7040	Perform Speed Trim Lift-Off Check
TF 7042	Perform Speed Trim Manual Operation
TF 7044	Perform PSAS Evaluation (C Model Only)
TF 7046	Perform SAS Evaluation Below 120 Knots (100 Knots A Model)
TF 7050	Perform STVA Evaluation (C Model Only)
TF 7055	Perform TEAC (L-7 Series Engines)
TF 7060	Perform TEAC (L-11 Series Engines)
TF 7065	Perform Autorotation RPM Check
TF 7070	Perform Navigation and Communication Equipment Check
TF 7075	Perform After-Landing and Engine Shutdown Checks

7-3. CH-47 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (CH-47)

For use of this form see FM 55-44. The proponent agency is TRADOC

a. NO.	b. MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	S
2	BEFORE-STARTING ENGINE CHECKS	S
3	ENGINE START/RUN-UP PROCEDURE	S
4	BEFORE-TAKEOFF CHECKS	S
5	LIFT-OFF CHECK	S
6	ENGAGEMENT ERROR CHECK	S
7	SAS FUNCTION CHECK	S
8	PSAS CHECK (C MODEL ONLY)	S
9	CONTROL POSITION CHECK	S
10	TORQUE DIFFERENTIAL CHECK	S
11	DROOP ELIMINATOR CHECK	S
12	SPEED TRIM LIFT-OFF CHECK	S
13	SPEED TRIM MANUAL OPERATION	S
14	PSAS EVALUATION (C MODEL ONLY)	S
15	SAS EVALUATION BELOW 120 KNOTS (100 KNOTS A MODEL)	S
16	STVA EVALUATION (C MODEL ONLY)	S
17	TEAC (L-7 SERIES ENGINES)	S
18	TEAC (L-11 SERIES ENGINES)	S
19	AUTOROTATION RPM CHECK	S
20	NAVIGATION AND COMMUNICATION EQUIPMENT CHECK	S
21	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

NOTE ITEMS 22 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-5-R
DEC81

7-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. ***Task Number and Title.*** Each task listed in this chapter has been identified by a number and a title which correspond to the task list in paragraph 7-2.

b. ***Condition.*** The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance requirement.

c. ***Standards.*** The standards describe the degree of proficiency or standard of performance to which the task must be performed.

d. ***Description.*** The description is a written explanation of how the task should be accomplished to meet the standards.

e. ***References.*** References are shown that further amplify each task.

7-5. CH-47 MAINTENANCE TEST PILOT TASKS.

TASK: TF 7005

TASK: Perform preflight inspection.

CONDITION: In a CH-47 helicopter prior to flight.

STANDARDS:

1. Use MTF manual checklist.
2. Use callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Use the callout and confirmation method from the MTF manual to perform the pretest flight inspection. Applicable publications will be used as necessary for amplifications.

REFERENCES:

AR 95-1

TM 55-1500-210-MTF

TASK: Perform before-starting engine checks.

CONDITION: In a CH-47 helicopter prior to starting engine.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the MTF manual and the callout and confirmation method, perform the cockpit check in sequence.

REFERENCES:

AR 95-1

TM 55-1500-210-MTF

TASK: TF 7015

TASK: Perform engine start/run-up procedure.

CONDITION: In a CH-47 helicopter after cockpit check.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using appropriate checklist, start and run up engines with callout and confirmation method.

REFERENCES:

AR 95-1

TM 55-1500-210-MTF

TASK: Perform before-takeoff check.

CONDITION: In a CH-47 helicopter after run-up checks are completed.

STANDARDS:

1. Use MTF manual checklist.
2. Use callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using oral callout and confirmation method, use TM 55-1500-210-MTF to perform before-takeoff checks.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-23-series

TM 55-1520-227-23-series

TASK: TF 7022

TASK: Perform lift-off check.

CONDITION: In a CH-47 helicopter after before-takeoff check.

STANDARDS:

1. Clear aircraft.
2. Complete before-takeoff checks (SAS off).
3. Check brakes.
4. Lift forward gear 1-2 feet off the ground.
5. Check control response in all axes.
6. Check SAS engagement errors.
7. See statement #1.

DESCRIPTION: Apply parking brakes and 2-inch aft cyclic with SAS OFF. Slowly increase thrust and lift forward landing gear off the ground, insuring controls and brakes function properly. Raise altitude to about 5° to 8° above horizon while constantly confirming proper operation of light controls and brakes.

NOTE

If at any time conditions do not appear to be normal, land aircraft and investigate.

With forward landing gear off the ground (1-2 feet), check flight control response in all axes by putting a slight input into pitch, up and down; roll, left and right; yaw left and right and thrust up and down to confirm proper control operation. If controls check out satisfactorily, place the aircraft back on the ground lightly and engage and disengage the SAS, checking for **hardovers** and balance errors in both systems. If no errors exist, leave engaged.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-23-series

TM 55-1520-227-23-series

TASK: Perform engagement error check.

CONDITION: In a CH-47 helicopter after lift-off checks are completed.

STANDARDS:

1. Clear aircraft.
2. Stabilize at a hover into wind.
3. Check SAS engagement error.
4. Check SAS both on, #1 ON and #2 ON for proper functioning.
5. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, stabilize aircraft at hover into the wind. Check engagement error by moving the EMER SAS REL switch to RELEASE and back to ENGAGE. Next move SAS selector switch to NO 2 ON, then BOTH, then NO 1 ON, and then back to BOTH. During the engagement error, insure altitude of the aircraft is kept stable; otherwise, during the switching of the systems an engagement error will be present.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-23-series

TM 55-1520-227-23-series

TASK: TF 7026

TASK: Perform SAS function check.

CONDITION: In a CH-47 helicopter at stabilized hover.

STANDARDS:

1. Stabilize aircraft hover.
2. Perform SAS function check.
3. See statement #1.

DESCRIPTION: SAS selector switch BOTH ON. Check SAS response in the pitch, roll, and yaw axes. If satisfactory, check for the same condition in all three axes with NO 1 SAS ON and NO 2 SAS ON.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-23-series

TM 55-1520-227-23-series

TASK: Perform PSAS check (C model only).

CONDITION: In a CH-47C helicopter at stabilized hover.

STANDARDS:

1. Stabilize aircraft hover.
2. Perform PSAS function check.
3. See statement #1.

DESCRIPTION: PSAS selector switch in NORMAL SYNC. Check pitch axes with a 5° displacement nose up and 5° nose down. Aircraft should return to entry altitude after each displacement.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-227-23-series

TASK: TF 7032

TASK: Perform control position check.

CONDITION: In a CH-47 helicopter at stabilized hover.

STANDARDS:

1. Hover crosswind.
2. Note longitudinal cyclic position.
3. Hover into wind.
4. Note lateral cyclic and pedal position.
5. Check trim wheel operation.
6. See statement #1.

DESCRIPTION: While hovering crosswind, determine longitudinal cyclic position from indicator. If stick position indicator is inaccurate, use ruler to determine cyclic position until indicator is recalibrated. Turn aircraft into the wind and measure lateral cyclic and pedals. Rotate trim wheel full forward while allowing the cyclic to drift forward without changing aircraft altitude and repeat for aft.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-23-series

TM 55-1520-227-23-series

TASK: Perform torque differential check.

CONDITION: In a CH-47 helicopter on the ground, thrust 3° detent.

STANDARDS:

1. Maintain operating RRPM.
2. Maintain constant thrust position.
3. Record N1, EGT, and torque for each engine.
4. Evaluate information.
5. See statement #1.

DESCRIPTION: With aircraft on the ground, move ECL for #2 engine from flight to ground and beep #1 engine to operating RRPM. Increase thrust to a point where aircraft is light on the gear while maintaining operating RRPM with normal engine trim. After N1 has stabilized, record EGT (PTIT), N1, and torque for #1 engine. Maintain constant thrust position and decrease normal engine trim to full decrease. Move #2 ECL from ground to flight and as #2 engine passes through 60-70 percent N1, move #1 engine ECL from flight to ground. Beep #2 engine to the same operating RPM as #1 engine and record EGT (PTIT), N1, and torque. Recover by keeping #2 engine to minimum beep then placing the thrust in 3° detent and #1 engine to flight. After #1 engine has stabilized, beep engines to normal RRPM and matched torque. Evaluation of information gathered should then be discussed.

REFERENCES:

TM 55-1500-210-MTF

TASK: TF 7036

TASK: Perform droop eliminator check.

CONDITION: In a CH-47 on the ground.

STANDARDS:

1. Maintain aircraft at normal operating RPM.
2. Thrust 3° detent.
3. SAS ON.
4. Lift off to stabilized hover.
5. See statement #1.

DESCRIPTION: Establish normal operating RRPM with matched torque, SAS ON, and thrust 3° detent. Smoothly increase thrust and bring aircraft to stabilized hover while noting changes in RRPM and torque. Check for transient and stabilized torque and RRPM splits.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-23-series

TM 55-1520-227-23-series

TASK: Perform speed trim lift-off check.

CONDITION: In a CH-47 helicopter in flight, day, VMC.

STANDARDS:

1. Complete takeoff checks.
2. Take off to required airspeed as listed in MTF.
3. Maintain required airspeed.
4. Collect proper indications.
5. See statement #1.

DESCRIPTION: Stabilize airspeed at 50 knots to check fully retracted rigging of speed trim indicators in lower green block. Accelerate to 60 knots, compare pilot's and copilot's airspeed indicators for errors, and measure and record longitudinal, lateral, and directional pedal positions. Increase airspeed to 70 knots while noting speed trim indicator for lift-off within limits (80 knots for A model).

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-23-series

TM 55-1520-227-23-series

NOTE: Regulations require all test flights to be within a designated test flight area. Selection of such an area should take forced landing availabilities, aircraft recovery capabilities, and traffic density into consideration. Due to the increased division of attention required during test flights, it is advisable to have extensive radar coverage if available.

TASK: TF 7042

TASK: Perform speed trim manual operation.

CONDITION: In a CH-47 helicopter in flight below airspeed from -10 charts*, day, VMC, A model.

***Remaining within airspeed limitations for retracted speed trim operation in accordance with TM 55-1520-209-10/227-10-1/227-10-2.**

STANDARDS:

1. Maintain appropriate airspeed.
2. Perform speed trim manual operation check.
3. See statement #1.

DESCRIPTION: At prescribed airspeed, note speed trim indicator position and place speed trim switch to manual. Check for proper equipment installation by slightly extending the forward actuator and noting a corresponding movement on the forward indicator. Repeat for aft. If installed properly, check actuators for proper operation in manual by fully extending and then fully retracting while observing indicator movement within range. Switch speed trim switch back to auto, and if entry airspeed is still present, the indicators should return to previously noted position.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-10

TM 55-1520-227-10-1

TM 55-1520-227-10-2

TASK: Perform PSAS evaluation (C model only).

CONDITION: In a CH-47C helicopter at prescribed airspeed, day, VMC.

STANDARDS:

1. Maintain appropriate airspeed.
2. Check PSAS in AUTO SYNC.
3. Check PSAS in NORM SYNC.
4. See statement #1.

DESCRIPTION: At 100 knots airspeed, turn PSAS switch to AUTO SYNC and trim the helicopter. After aircraft and PSAS trimmed for 100 knots, slowly increase airspeed to 110 without releasing PSAS. At 110 knots, depress the centering release switch; no transient change in the helicopter altitude should occur. Continue acceleration to 120 knots and then switch PSAS to NORM SYNC. Displace helicopter 5° nose up, without releasing PSAS with control centering release switch, until airspeed has decreased 5 knots. Allow the control centering to replace the cyclic to entry position; helicopter should return to within 1° of entry altitude and 120 knots airspeed. Repeat procedure for nose down evaluation. After evaluation is completed, return PSAS to OFF.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-227-23-series

TASK: TF 7046

TASK: Perform SAS evaluation below 120 knots (100 knots A model).

CONDITION: In a CH-47 helicopter in flight below 120 knots (100 knots A model) day, VMC.

STANDARDS:

1. Maintain airspeed.
2. Clear aircraft.
3. Check SAS in BOTH NO 1 and NO 2.
4. Check side slip inputs.
5. Check roll return in each direction (C model only).
6. See statement #1.

DESCRIPTION: With airspeed below 120 knots, check SAS in BOTH NO. 1 and NO. 2 systems for stability and balance in pitch, roll, and yaw axes. During single SAS operation, a check of the side slip inputs into the yaw channel is made by a standard rate turn to the right then rolling into a standard rate turn to the left and confirming that the aircraft remains in trim. A check of the VGI inputs into the roll channel is made by rolling the helicopter 5° to 7° bank angle, without depressing control centering button, and allowing cyclic to return to centered position. The helicopter should return to centered position. The helicopter should return to level trim within 1° in 5 seconds with little or no overshoot. Repeat for opposite direct.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-209-23-series

TM 55-1520-227-23-series

TASK: Perform STVA evaluation (C model only).

CONDITION: In a CH-47C helicopter in flight, day, VMC.

STANDARDS:

1. Maintain required airspeeds.
2. Maintain required RRPM.
3. Check STVA return evaluation.
4. See statement #1.

DESCRIPTION: In flight with RRPM set at 235, beep to 245 if L-11 series engines installed (238 w/L7C) and increase airspeed to 140 knots. Absorbers should return within 60 seconds. Decrease RRPM to 235 and absorbers should return within 60 seconds.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-227-23-series

TASK: TF 7055

TASK: Perform TEAC (L-7 series engines).

CONDITION: In a CH-47 helicopter at predetermined pressure altitude and 100 knots, day, VMC.

STANDARDS:

1. Determine TEAC targets.
2. Climb to predetermined pressure altitude.
3. Maintain 100 knots airspeed.
4. Insure anti-icing OFF.
5. Perform TEAC using MTF manual.
6. Record data.
7. See statement #1.

DESCRIPTION: After determining N1, EGT, TORQUE, and PRESSURE ALTITUDE targets, take off and climb to predetermined pressure altitude and airspeed. Note that the conditions used to determine the target information are still applicable to prevent exceeding engine or airframe limitations when target pressure altitude is reached. If conditions have changed significantly, a new target will have to be established. Set N2 at 238 for CH-47C with L7C (228 for A and B models), note entry torque and set both normal engine trim switches to OFF. While operating on both engines, raise the thrust lever slowly and using EMER ENG TRIM switches, adjust the engine to be TEACed to increase and the engine not being TEACed to full decrease. Increase thrust and emergency trim slowly while maintaining N2 speed, monitor engine acceleration to prevent exceeding N1 speed, and monitor acceleration to prevent exceeding N1, EGT, or torque parameters. Once maximum power has been stabilized, increase thrust, lever until RRPM decreases to operating RRPM and stabilizes for at least 1 minute and record N1, torque, RRPM, EGT, FAT, PA, and airspeed. After completion of TEAC, reduce engine power initially by operating the emergency engine trim switch to decrease until rotor RPM begins to decrease and control of N2 actuator is gained.

> **NOTE: Care should be taken not to move the thrust without a corresponding adjustment to emergency engine trim since the droop eliminators are not functional with emergency engine trim in use.**

Simultaneously increase the EMER ENG TRIM switch on the engine not being TEACed while decreasing the EMER ENG TRIM switch on the engine having been checked. Once the engine torque has matched, continue decreasing and increasing to check the second engine. Stabilize and record data as previously described. After completion of the second TEAC, reduce engine power initially by operating the EMER ENG TRIM switch to decrease until rotor RPM begins to decrease and control of N2 actuator is gained. Simultaneously increase the EMER ENG TRIM switch on engine not being TEACed while decreasing the EMER ENG TRIM switch on the engine being TEACed and reestablish

previously recorded matched torque. Monitor the AC trim and engage NORM ENG TRIM switches one at a time. After TEAC is completed, analyze compiled data to determine courses of action.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-227-23-series

TM 55-2840-248-23

TASK: TF 7060

TASK: Perform TEAC (L-11 series engines).

CONDITION: In a CH-47C helicopter (L-11) at predetermined pressure altitude and 120 knots airspeed, day, VMC.

STANDARDS:

1. Determine requirement for baseline or normal TEAC.
2. Determine TEAC targets.
3. Maintain 120 knots airspeed (adjusted for atmospheric conditions).
4. Insure anti-icing OFF.
5. Perform TEAC using MTF manual.
6. Record data.
7. See statement #1.

DESCRIPTION: After determining N, PTIT, torque, and pressure altitude targets, take off and climb to predetermined pressure altitude and airspeed. Note that the conditions used to determine the target information are still applicable to prevent exceeding engine or airframe limitations when target pressure altitude is reached. If conditions have changed significantly, a new target will have to be established. Set N2 speed at 248, note entry torque and move ECL for engine not being topped to ground. Increase thrust slowly; while maintaining N2 speed, monitor engine acceleration to prevent exceeding N1, PTIT, or torque parameters. Once maximum power has been stabilized, increase thrust lever until RRPM decreases to 245 and stabilize for at least 1 minute and record N1, speed, torque, RRPM, PTIT, FAT, PA, and airspeed.

CAUTION: WHEN N2 ACTUATORS ARE IN THE MAXIMUM RANGE, NO REDUCTION IN THRUST POSITION SHOULD BE MADE WITHOUT FIRST DECREASING ENGINE BEEP SLIGHTLY OR N2 AND/OR ROTOR OVERSPEED MAY OCCUR SINCE DROOP ELIMINATORS ARE NOT EFFECTIVE AT MAXIMUM RANGES.

To top the remaining engine, decrease normal engine trim beep until droop eliminators again take effect and reduce thrust back to single engine cruise. Slowly move condition lever in ground to flight while maintaining RRPM within limits. Move ECL for engine just topped to ground while maintaining RRPM with beep. Continue topping engine by slowly increasing thrust and follow same procedures as the first engine.

CAUTION: WHEN TOPPING NO 2 ENGINE WITH NORMAL ENGINE TRIM SWITCHES, THE N2 ACTUATOR FOR NO 1 ENGINE WILL ALSO BE RECEIVING A SIGNAL EVEN THOUGH NO 1 ENGINE IS IN GROUND. CARE SHOULD BE TAKEN TO INSURE RRPM AND ENGINE LIMITS ARE NOT EXCEEDED WHEN NO 1 ECL IS BROUGHT TO FLIGHT AFTER OPERATING THE NORMAL ENGINE TRIM SWITCHES NO 1 AND NO 2.

After TEAC is completed, analyze compiled data to determine courses of action.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-227-23-series

TM 55-2840-234-24-2

TASK: TF 7065

TASK: Perform autorotation RPM check.

CONDITIONS: In a CH-47 helicopter at sufficient altitude for power recovery, 70 knots, day, VMC.

STANDARDS:

1. Determine RRPM range IAW charts.
2. Cruise flight 70 knots.
3. Maintain adequate altitude to allow power recovery at 1,000 AGL.
4. Clear flight path.
5. Insure suitable forced landing areas are available.
6. Notify crew.
7. Enter autorotation.
8. Stabilize RRPM at 3° detent, move to full down.
9. Record RRPM for full down when in stabilized autorotation.
10. Check that pedal split and vibrations are normal.
11. Recover power.
12. See statement #1.

DESCRIPTION: With 70 knots entry airspeed and sufficient altitude to establish a stabilized autorotation and make power recovery, clear flight path and entry autorotation by releasing NORM ENG TRIM and decrease EMER BEEP to full decrease while maintaining RRPM with thrust. Reduce thrust to full down position and note RRPM within 230 to 261 (C model) depending on density altitude and gross weight. Check pedal split and any abnormal vibrations. To make power recovery, load the rotor to bring RPM down within engine range and turn NORM ENG TRIM switches on one at a time maintaining RRPM with thrust and reestablish a safe airspeed and altitude.

REFERENCES:

TM 55-1500-210-MTF

TM 55-1520-227-23-series

MAINTENANCE TEST FLIGHT PERSONNEL TRAINING RECORD

For use of this form, see FM 55-44. The proponent agency is TRADOC

1 NAME AND RANK			2 DATE OF BIRTH	3. MTFE COMP	4 AMOC PHASE II
5 INITIAL MTFE	6. ADDITIONAL ACFT MTFE	7 ADDITIONAL ACFT MTFE	8 INITIAL MTFE	9. ADDITIONAL MTFE	10 ADDITIONAL MTFE
11. UNIT/ORGANIZATION		12. TOE/TDA POSITION		13 PERIOD COVERED	

14 TASKS — GENERAL TEST FLIGHT	14a. FREQUENCY REQUIRED	14b. DATE AND NUMBER OF SEMIANNUAL ITERATIONS												

DA FORM 5051-R
DEC81

APPENDIX B

LOCAL REPRODUCTION AUTHORIZED ★ DA FORMS

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (OH-58)

For use of this form see FM 55-44. The proponent agency is TRADOC.

a. NO.	b. MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	
2	BEFORE STARTING ENGINE CHECKS	
3	STARTING ENGINE CHECKS	
4	ENGINE RUN-UP CHECKS	
5	BEFORE-TAKEOFF CHECK	
6	BASELINE OR NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	
7	TAKEOFF TO A HOVER	
8	HOVER POWER CHECK	
9	HOVERING TURNS	
10	PRIMARY DIRECTIONAL CONTROL CHECK (C ONLY)	
11	SIDEWARD FLIGHT	
12	FORWARD AND REARWARD HOVERING FLIGHT	
13	PYLON ISOLATION MOUNT CHECK	
14	POWER CYLINDER CHECK	
15	ENGINE RESPONSE CHECK	
16	BEFORE-TAKEOFF CHECK	
17	CONTROL RIGGING CHECK	
18	AUTOROTATIVE RPM CHECK	
19	ENGINE PERFORMANCE CHECK	
20	HYDRAULICS OFF CHECK	
21	OUT-OF-GROUND EFFECT (OGE) HOVER	
22	70 KIAS-15 PSI (A) OR 16% (C) DESCENT	
23	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	
24	2:1 VERTICAL VIBRATION CHECK	
25	FLIGHT INSTRUMENT CHECK	
26	COMMUNICATION AND NAVIGATION EQUIPMENT CHECK	
27	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

NOTE: ITEMS 28 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.

DA FORM 5051-2-R EDITION OF DEC 81 IS OBSOLETE.
Dec 82

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (UH-1)

For use of this form see FM 55-44. The proponent agency is TRADOC.

a. NO.	b. MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	
2	STARTING ENGINE CHECKS	
3	ENGINE START AND RUN-UP CHECKS	
4	BASELINE OR NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	
5	TAKEOFF TO A HOVER	
6	HOVERING TURNS	
7	SIDEWARD FLIGHT	
8	FORWARD AND REARWARD HOVERING FLIGHT	
9	PYLON MOUNT CHECK	
10	TORQUEMETER CHECK	
11	ENGINE RESPONSE CHECK	
12	POWER CYLINDER CHECK	
13	LOW-RPM HOVER	
14	MANUAL THROTTLE OPERATIONS, EMERGENCY GOVERNOR MODE	
15	BEFORE-TAKEOFF CHECK	
16	TAKEOFF AND CLIMB CHECKS	
17	LEVEL OFF CHECK	
18	CONTROL RIGGING CHECK	
19	AUTOROTATIVE RPM CHECK	
20	HYDRAULICS OFF CHECK (UH-1B, D & H)	
21	ENGINE TOPPING CHECK	
22	STABILIZER BAR CHECK	
23	OUT-OF-GROUND EFFECT (OGE) HOVER	
24	70-KNOT 10 PSI DESCENT	
25	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	
26	CYCLIC RIGGING CHECK (UH-1B, D & H)	
27	FLIGHT INSTRUMENTS CHECK	
28	COMMUNICATION AND NAVIGATION EQUIPMENT CHECK	
29	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

NOTE ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.

DA FORM 5051-1-R EDITION OF DEC 81 IS OBSOLETE.
Dec 82

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (UH-60)

For use of this form see FM 55-44. The proponent agency is TRADOC.

a NO.	b. MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	
2	BEFORE-STARTING ENGINES CHECK	
3	ENGINE START AND RUN-UP CHECKS	
4	BEFORE-TAKEOFF CHECK	
5	GROUND TAXI	
6	ENGINE HEALTH INDICATOR TEST (HIT)/ANTI-ICE	
7	TAKEOFF TO A HOVER	
8	SAS CHECK	
9	FPS CHECK	
10	TAIL ROTOR BACKUP CHECK	
11	TAKEOFF CHECK	
12	CRUISE CHECKS AT 80 KIAS	
13	AUTOROTATION RPM CHECK	
14	INFLIGHT CONTROLLABILITY CHECK	
15	MAXIMUM POWER CHECK	
16	STABILATOR CHECK AT 120 KIAS	
17	FPS CHECK DURING FLIGHT	
18	LOW ROTOR RPM CHECK	
19	Vh CHECK	
20	NAVIGATION AND COMMUNICATION EQUIPMENT CHECK	
21	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

NOTE: ITEMS 22 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.

DA FORM 5051-3-R
DEC 81

GLOSSARY

A

AAPART ..... Annual Aviator Proficiency and Readiness Test
AGL ..... air ground level
AMOC ..... Aviation Maintenance Officer Course
ASI ..... additional skill identifier
ATM ..... aircrew training manual
AUTO ..... automatic

C

★ **CONT** .....control
Continuation Training ..... training designed to maintain an aviator's proficiency on a day to day basis

D

DES ..... Directorate, Evaluation and Standardization
DOES ..... Directorate of Evaluation and Standardization

E

★ **ECL** ..... engine condition lever
EGT ..... exhaust gas temperature
ENG ..... engine
ETM ..... extension training material

F

FAC ..... flight activity category
FAT ..... free air temperature
FPS ..... flight path stabilization
FW ..... fixed wing

G

GOV ..... governor

H

HIT ..... health indicator test
HYD ..... hydraulic

I

IAW ..... in accordance with
IFTF ..... individual flight training folder
IN HG ..... inches of mercury
IP ..... instructor pilot

K

KIAS ..... knots indicated air speed

M

Mission
Training ..... training designed to prepare the aviator to perform a unit's mission task
MTF ..... maintenance test flight
MTFE ..... maintenance test flight evaluation
MTP ..... maintenance test pilot

N

NORM ..... normal
N1 ..... gas turbine speed
N2 ..... power turbine speed

O

OGE ..... out-of-ground effect

P

PA ..... pressure altitude
PSAS ..... pitch stabilization augmentation system
PSI ..... pounds per square inch
PTIT ..... power turbine inlet temperature

R

Refresher
Training ..... training designed to retrain an aviator after a long period of absence from flying
REL ..... release
RPM ..... revolutions per minute
RPMR ..... revolutions per minute rotor
RRPM ..... rotor revolutions per minute
RW ..... rotary wing

S

SAS ..... stability augmentation system
SCAS ..... stability and control augmentation system
SIP ..... standardization instructor pilot
STVA ..... self-tuning vibration absorber
SYS ..... system

T

TEAC ..... turbine engine analysis check
TGT ..... turbine gas temperature
★ **TOT** ..... time over target
TSARCOM ... Troop Support and Aviation Materiel Readiness Command

★ U.S. GOVERNMENT PRINTING OFFICE: 1983-639-035:1052

FM 55-44

30 DECEMBER 1981

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

Active Army, ARNG, and USAR: To be distributed in accordance with DA Form 12-11A, Requirements for Aviation Company (Qty rqr block no. 1); plus DA Form 12-31, Requirements for all Fixed and Rotor Wing Aircraft (Qty rqr block no. 321).

Additional copies may be requisitioned from the US Army Adjutant General Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220.

☆U.S. GOVERNMENT PRINTING OFFICE: 1982-539-034:105

DEPARTMENT OF THE ARMY
US Army AG Publ Center
2800 Eastern Blvd.
Baltimore, Maryland 21220
OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
POD-314
SPECIAL FOURTH
CLASS BOOK RATE

D0774

78/76 LIBRARIAN
THE PENTAGON RM 1A518
ANR-AL-RS MIL DOCS
WASHINGTON DC 20310

DA PUBLICATION/FORM NUMBER				CHG OR DATE
PUB FM 55-44 C1				
LOCATION	QUANTITY	UNIT OF ISSUE	ACTION	RON DATE
	2	INIT. DIST.		
PKG SIZE	ITEM NO.	BULK/RCPT DATE	BAGPC CONTROL NO	
			83073-04231	

TAGO FORM 4-26 9 OCT 75

S/S Chg. 1 31-Dec-83

CHAPTER 4

OBSERVATION HELICOPTER MAINTENANCE TEST PILOT TASKS

4-1. GENERAL.

This chapter contains the observation helicopter test pilot tasks and their conditions, standards, and description. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and the MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be submitted as directed in the preface of this manual.

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

4-2. OH-58 MAINTENANCE TEST PILOT TASK LIST.

TASK	TASK TITLE
TF 4400	Perform Preflight Inspection
TF 4405	Perform Before-Starting Engine Checks
TF 4410	Perform Starting Engine Checks
TF 4415	Perform Engine Run-up Checks
TF 4420	Perform Before-Takeoff Check
TF 4425	Perform Baseline or Normal Engine Health Indicator Test (HIT) as required
TF 4430	Perform Take off to a Hover
TF 4432	Perform Hovering Turns
TF 4434	Perform Sideward Flight
TF 4436	Perform Forward and Rearward Hovering Flight
TF 4440	Perform Pylon Isolation Mount Check
TF 4445	Perform Power Cylinder Check
TF 4450	Perform Engine Response Check
TF 4455	Perform Low-Revolutions Per Minute (RPM) Hover
TF 4465	Perform Control Rigging Check
TF 4470	Perform Autorotative RPM Check
TF 4475	Perform Hydraulics Off Check
TF 4480	Perform Out-Of-Ground Effect (OGE) Hover
TF 4485	Perform 70 KIAS-15 PSI (A) or 16% (C) Descent
TF 4487	Perform Vibration Analysis During Increasing Airspeeds
TF 4490	Perform 2:1 Vertical Vibration Check
TF 4492	Perform Flight Instrument Check
TF 4494	Perform Communication and Navigation Equipment Check
TF 4495	Perform After-Landing and Engine Shutdown Checks

4-3. OH-58 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (OH-58)

For use of this form see FM 55-44 The proponent agency is TRADOC.

a NO.	b MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	S
2	BEFORE STARTING ENGINE CHECKS	S
3	STARTING ENGINE CHECKS	S
4	ENGINE RUN-UP CHECKS	S
5	BEFORE-TAKEOFF CHECK	S
6	BASELINE OR NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
7	TAKEOFF TO A HOVER	S
8	HOVERING TURNS	S
9	SIDEWARD FLIGHT	S
10	FOREWARD AND REARWARD HOVERING FLIGHT	S
11	PYLON ISOLATION MOUNT CHECK	S
12	POWER CYLINDER CHECK	S
13	ENGINE RESPONSE CHECK	S
14	LOW-RPM HOVER	S
15	CONTROL RIGGING CHECK	S
16	AUTOROTATIVE RPM CHECK	S
17	HYDRAULICS OFF CHECK	S
18	OUT-OF-GROUND EFFECT (OGE) HOVER	S
19	70 KIAS-15 PSI (A) OR 16% (C) DESCENT	S
20	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	S
21	2 1 VERTICAL VIBRATION CHECK	S
22	FLIGHT INSTRUMENT CHECK	S
23	COMMUNICATION AND NAVIGATION EQUIPMENT CHECK	S
24	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

SAMPLE

NOTE ITEMS 26 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-1-R
DEC81

4-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. ***Task Number and Title.*** Each task listed in this chapter has been identified by a number and a title which corresponds to the task list in paragraph 4-2.

b. ***Condition.*** The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance requirement.

c. ***Standard.*** The standard describes the degree of proficiency or standard of performance to which the task must be performed.

d. ***Description.*** The description is a written explanation of how the task should be accomplished to meet the standards.

e. ***References.*** References are shown that further amplify each task.

4-5. OH-58 MAINTENANCE TEST PILOT TASKS.

TASK: TF 4400

TASK: Perform preflight inspection.

CONDITION: In an OH-58A/C helicopter prior to flight.

STANDARDS:

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

REFERENCES:

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform before-starting engine checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Use TM 55-1520-228-MTF (A) and TM 55-1520-235-CL (C).
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C) to perform the before-starting engine checks.

REFERENCES:

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: TF 4410

TASK: Perform starting engine checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C).
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C) to perform the starting engine checks.

REFERENCES:

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform engine run-up checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C).
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C) to perform the engine run-up checks.

REFERENCES:

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: TF 4420

TASK: Perform before-takeoff check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C).
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C) to perform the before- takeoff check.

REFERENCES:

AR 95-1

TM 55-1520-228-MTF

TM 55-1520-228-23-series

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C).
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TM 55-2840-231-23

TM 55-2840-241-23

TASK: TF 4430

TASK: Perform take off to a hover.

CONDITION: In an OH-58A/C helicopter; before-takeoff check completed, day, visual meteorological conditions (VMC).

STANDARDS:

1. Clear aircraft.
2. Insure that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent to a 3-foot hover.
4. Insure that apparent center of gravity is normal.
5. Insure that droop compensation is normal.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinates cyclic to achieve a vertical ascent. Note apparent center of gravity is normal, and no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed is normal. Hovering into the wind, note cyclic and pedal positions normal for conditions. Check hover pad for oil spots that could indicate leakage.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform hovering turns.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Maintain 3-foot hover.
5. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: TF 4434

TASK: Perform sideward flight.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and head aircraft into the wind.
4. Note cyclic response.
5. Maintain 3-foot above ground level (AGL) altitude.
6. Limit ground speed to 5 knots.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight noting that no excessive inputs are required and that the desired aircraft response is achieved. Neutralize cyclic; aircraft should drift to a stop.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform forward and rearward hovering flight.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform forward and rearward hovering flight at 5-foot AGL.
3. Head aircraft into the wind for forward hovering flight.
4. Turn aircraft tail into the wind for rearward.
5. Note cyclic response.
6. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: TF 4440

TASK: Perform pylon isolation mount check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Stabilize hover at 3 feet.
2. Head aircraft into the wind.
3. Maintain appropriate altitude.
4. Induce pylon rock.
5. See statement #1.

DESCRIPTION: Move the cyclic fore and aft, not to exceed 3 to 4 inches, at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Note that vibrations should start to dampen out after three to five cycles. Note that no abnormal vibrations or engine surges occur.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform power cyclinder check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Complete copilot/observer briefing.
2. Head aircraft into the wind.
3. Maintain 10-foot hover.
4. Perform power cylinder check.
5. See statement #1.

DESCRIPTION: Move the cyclic smoothly approximately 6 inches either side of center along a 45° line from left rear to right forward quadrant several times. Note that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quandrant.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: TF 4450

TASK: Perform engine response check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Insure that altitude does not exceed 25 feet.
3. Note engine response.
4. See statement #1.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch, then reduce collective before excessive altitude is gained. Climb should not exceed 25 feet. Engine should respond smoothly and rapidly.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-2840-231-23

TM 55-2840-241-23

TASK: Perform low-RPM hover.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Maintain a 3-foot altitude.
3. Using governor RPM switch, fully decrease N2 RPM.
4. Perform hovering turn 45° left and right of initial heading.
5. Note controllability.
6. See statement #1.

DESCRIPTION: Decrease N2 RPM to full decrease using governor RPM switch while maintaining a stabilized hover. Check controllability at low RPM, control positions, and check antitorque controllability by performing 45° hovering turns. Increase N2 RPM to 103 percent.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

NOTE: Perform before-takeoff check (task 4420) before continuing.

TASK: TF 4465

TASK: Perform control rigging check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Turn force trim on.
3. Maintain 100 KIAS or as adjusted for atmospheric conditions.
4. Maintain torque at 60 psi for A model, 65 percent for C model.
5. Maintain aircraft in trim.
6. Note cyclic and pedal positions.
7. See statement #1.

DESCRIPTION: Maintaining appropriate airspeed, torque and trim, note cyclic nearly centered and right pedal is 1 to 2 inches forward. Remove pedal pressure and note pedal response.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform autorotative RPM check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Maintain altitude sufficient to allow power recovery at or above 500 feet AGL.
2. Maintain 55 KIAS.
3. Insure that suitable landing area is within gliding distance.
4. Correct autorotation entry procedure.
5. Note N1, trim, vibrations, and rotor RPM.
6. Correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 55 KIAS; smoothly lower collective to full down position noting that main rotor does not overspeed. Retard throttle to engine idle. Note N1 stabilized at engine idle, aircraft in trim, sufficient right pedal remains, no unusual vibrations, and rotor stabilized at appropriate RPM. Perform power recovery and establish a definite climb.

REFERENCES:

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: TF 4475

TASK: Perform hydraulics off check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Maintain 70 KIAS.
3. Complete copilot/observer briefing.
4. Perform hydraulics off check.
5. See statement #1.

DESCRIPTION: Maintain 70 KIAS; turn hydraulic boost switch off. Check cyclic control forces normal for conditions. Increase and decrease collective and check that at least 76 psi torque up and 16 psi torque down (83 percent torque up and 17 percent torque down for C model) can be reached without excessive pressures. Turn hydraulic boost switch on.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Reduce KIAS to zero.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, reduce airspeed rearward to zero while maintaining altitude. The aircraft should drift at current wind velocity when zero airspeed is attained. Check vibration levels within tolerances and increase KIAS to 70.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

NOTE: Task is not required if a VIBREX has been accomplished.

TASK: TF 4485

TASK: Perform 70 KIAS- 15 PSI (A) or 16 percent (C) descent.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain 70 KIAS straight and level flight.
2. Maintain altitude IAW local directives.
3. Perform 70 KIAS - 15 psi (A) or 16 percent (C) descent.
4. Note vibration level.
5. See statement #1.

DESCRIPTION: While flying straight and level at 70 KIAS, note vibration level. Maintain 70 KIAS and reduce power to 15 psi (A) or 16 percent (C) torque. Note change in vibration level. Reestablish 70 KIAS straight and level flight.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain 70 KIAS.
2. Maintain altitude IAW local directives.
3. Increase airspeed in 10 knot increments.
4. Note change in vibration level.
5. Compute VNE.
6. See statement #1.

DESCRIPTION: Maintaining straight and level flight, slowly increase from 70 KIAS to VNE in 10 knot increments unless vibrations become severe. Note any changes in vibration level. Reestablish normal flight.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: TF 4490

TASK: Perform 2:1 vertical vibration check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Maintain 80 to 90 KIAS.
3. Perform 2:1 vertical vibration check.
4. Note change in vibration level.
5. See statement #1.

DESCRIPTION: Maintain 80 to 90 KIAS and perform 30° left and right level banks and small cyclic dives and climbs. Note 2:1 vibration level.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform flight instrument check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Check flight instruments.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes checking performance of all installed flight instruments.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: TF 4494

TASK: Perform communication and navigation equipment check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Maintain airspeed as required.
3. Check all installed avionics equipment.
4. See statement #1.

DESCRIPTION: Check operation of all installed avionics equipment as indicated in the appropriate publication.

REFERENCES:

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:

1. Use TM 55-1520-228-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF to perform the after-landing and engine shutdown checks.

REFERENCES:

AR 95-1

TM 55-1520-228-23-series

TM 55-1520-228-MTF

TM 55-1520-235-CL

TM 55-1520-235-10

CHAPTER 5

UTILITY HELICOPTER MAINTENANCE TEST PILOT TASKS

5-1. GENERAL.

This chapter contains the utility helicopter maintenance test pilot tasks, and their conditions, standards, and description. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be immediately submitted as directed in the preface of this manual.

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

5-2. UH-1 MAINTENANCE TEST PILOT TASK LIST.

TASK	TASK TITLE
TF 5003	Perform Preflight Inspection
TF 5006	Perform Starting Engine Checks
TF 5009	Perform Engine Start and Run-up Checks
TF 5012	Perform Baseline or Normal Engine Health Indicator Test (HIT) as required
TF 5015	Perform Takeoff to a Hover
TF 5018	Perform Hovering Turns
TF 5021	Perform Sideward Flight
TF 5024	Perform Forward and Rearward Hovering Flight
TF 5027	Perform Pylon Mount Check
TF 5030	Perform Torquemeter Check
TF 5033	Perform Engine Response Check
TF 5036	Perform Power Cylinder Check
TF 5039	Perform Low-RPM Hover
TF 5042	Perform Manual Throttle Operations, Emergency Governor Mode
TF 5045	Perform Before-Takeoff Check
TF 5048	Perform Takeoff and Climb Checks
TF 5051	Perform Level Off Check
TF 5054	Perform Control Rigging Check
TF 5057	Perform Autorotative RPM Check
TF 5060	Perform Hydraulics Off Check
TF 5063	Perform Engine Topping Check
TF 5066	Perform Stabilizer Bar Check
TF 5069	Perform Out-Of-Ground Effect (OGE) Hover
TF 5072	Perform 70-Knot 10 PSI Descent
TF 5075	Perform Vibration Analysis During Increasing Airspeeds

TF 5078 ..... Perform Cyclic Rigging Check (UH-1B, D, & H)
TF 5081 ..... Perform Flight Instruments Check
TF 5084 ..... Perform Communication and Navigation Equipment Check
TF 5087 ..... Perform After-Landing and Engine Shutdown Checks

5-3. UH-1 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (UH-1)

For use of this form see FM 55-44 The proponent agency is TRADOC.

a. NO.	b. MANEUVER/PROCEDURE	c. GR
1	PREFLIGHT INSPECTION	S
2	STARTING ENGINE CHECKS	S
3	ENGINE START AND RUN-UP CHECKS	S
4	BASELINE OR NORMAL ENGINE HEALTH INOICATOR TEST (HIT)	S
5	TAKEOFF TO A HOVER	S
6	HOVERING TURNS	S
7	SIDEWARD FLIGHT	S
8	FORWARD AND REARWARO HOVERING FLIGHT	S
9	PYLON MOUNT CHECK	S
10	TORQUEMETER CHECK	S
11	ENGINE RESPONSE CHECK	S
12	POWER CYLINDER CHECK	S
13	LOW-RPM HOVER	S
14	MANUAL THROTTLE OPERATIONS, EMERGENCY GOVERNOR MODE	S
15	BEFORE-TAKEOFF CHECK	S
16	TAKEOFF AND CLIMB CHECKS	S
17	LEVEL OFF CHECK	S
18	CONTROL RIGGING CHECK	S
19	AUTOROTATIVE RPM CHECK	S
20	HYDRAULICS OFF CHECK	S
21	ENGINE TOPPING CHECK	S
22	STABILIZER BAR CHECK	S
23	OUT-OF-GROUND EFFECT (OGE) HOVER	S
24	70-KNOT 10 PSI OESCENT	S
25	VIBRATION ANALYSIS DURING INCREASING AIRSPEEOS	S
26	CYCLIC RIGGING CHECK (UH-1B, D & H)	S
27	FLIGHT INSTRUMENTS CHECK	S
28	COMMUNICATION AND NAVIGATION EQUIPMENT CHECK	S
29	AFTER-LANOING AND ENGINE SHUTDOWN CHECKS	S
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

SAMPLE

NOTE ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-2-R
DEC81

5-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. ***Task Number and Title.*** Each task listed in this chapter has been identified by a number and a title which corresponds to the task list in paragraphs 5-2a for the UH-1 and 5-2b for the UH-60.

b. ***Condition.*** The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance environment.

c. ***Standards.*** The standards describe the degree of proficiency or standard of performance to which the task must be performed.

d. ***Description.*** The description is a written explanation of how the task should be accomplished to meet the standards.

e. ***References.*** References are shown that further amplify each task.

5-5. UH-1 MAINTENANCE TEST PILOT TASKS.

TASK: TF 5003

TASK: Perform preflight inspection.

CONDITION: In a UH-1 helicopter prior to flight.

STANDARDS:

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

REFERENCES:

AR 95-1

TM 55-1500-219-MTF

TASK: Perform starting engine checks.

CONDITION: In a UH-1 helicopter prior to starting engine.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219-MTF to perform the starting engine checks.

REFERENCES:

AR 95-1

TM 55-1500-219-MTF

TASK: TF 5009

TASK: Perform engine start and run-up checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219 MTF to perform the engine start and run-up checks.

REFERENCES:

AR 95-1

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In a UH-1 helicopter; before-takeoff check complete.

STANDARDS:

1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-2840-229-23-1/-2

TASK: TF 5015

TASK: Perform takeoff to a hover.

CONDITION: In a UH-1 helicopter; before-takeoff check complete, day, (VMC).

STANDARDS:

1. Clear aircraft.
2. Insure that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent to a 3-foot hover.
4. Note that apparent center of gravity is normal.
5. Note that droop cam operation is normal.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinates cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed remains constant within ± 40 RPM. Hovering into the wind, note cyclic nearly centered, and pedal position normal. Move off hover pad and check ground for oil spots which could indicate leakage.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform hovering turns.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Maintain appropriate hover altitude.
5. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5021

TASK: Perform sideward flight.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and head aircraft into the wind.
4. Note cyclic response.
5. Maintain appropriate altitude.
6. Note that hover speed is consistent with autorotational capabilities.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight noting that no excessive inputs are required and that the desired aircraft response is achieved.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform forward and rearward hovering flight.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform forward and rearward hovering flight.
3. Head aircraft into the wind for forward hovering flight.
4. Turn aircraft tail into the wind for rearward hovering flight.
5. Note cyclic response.
6. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Stabilize at a minimum 5-foot hover. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5027

TASK: Perform pylon mounts check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Stabilize hover.
2. Head aircraft into the wind.
3. Maintain appropriate altitude.
4. Induce pylon rock.
5. Correctly determine malfunction or discrepancies and apply corrective action and troubleshooting procedures.

DESCRIPTION: Move the cyclic fore and aft 3 to 4 inches at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Bumping should dampen out after four to five cycles. Note that no abnormal vibrations or engine surges occur.

REFERENCE:

TM 55-1500-219-MTF

TASK: Perform torquemeter check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Stabilized hover at 2 feet.
2. Head aircraft into wind.
3. Maintain appropriate altitude.
4. Note torque indication.
5. See statement #1.

DESCRIPTION: Note that torque indication is correct as predetermined from performance charts.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5033

TASK: Perform engine response check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Make sure altitude does not exceed 50 feet.
3. Note engine response.
4. See statement #1.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch, then reduce collective before excessive altitude is gained. Climb should not exceed 50 feet. Engine should respond smoothly and rapidly.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform power cylinder check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Complete copilot/observer briefing to include emergency procedure for induced control lockup.
2. Head aircraft into the wind.
3. Maintain appropriate altitude (10-foot minimum).
4. Perform power cylinder check.
5. See statement #1.

DESCRIPTION: Move the cyclic smoothly 6 to 8 inches along a 45° line from left rear to right forward quadrant several times, noting that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant. (Check UH-1 C, M model by turning off one hydraulic system at a time.)

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5039

TASK: Perform low-RPM hover.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Maintain appropriate altitude.
3. Using governor increase/decrease switch, decrease N2 RPM to 6,000.
4. Perform hovering turns 45° left and right of initial heading.
5. Note controllability.
6. See statement #1.

DESCRIPTION: Decrease N2 RPM to 6,000 with governor increase/decrease switch while maintaining a stabilized hover. Check controllability at low RPM, control positions, and check antitorque controllability by performing 45° hovering turns. Increase RPM to 6,600.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform manual throttle operations, emergency governor mode.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Use correct procedures to change governor to emergency mode.
2. Maintain RPM 6,400 ± 100.
3. Maintain positive aircraft control.
4. Note engine performance throughout maneuver.
5. Use correct procedure to change governor to automatic mode.
6. See statement #1.

DESCRIPTION: While on the ground, move throttle to flight idle, and governor switch to emergency position. Carefully open throttle to 6,400 RPM and increase collective; maintain 6,400 RPM with throttle; stabilize at hover. Land aircraft, throttle to flight idle, governor switch to auto. Note N1 stabilized at flight idle and caution light out; increase throttle to full open 6,600 RPM.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5045

TASK: Perform before-takeoff check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the callout and confirmation method, use TM 55-1520-209-MTF to perform the before-takeoff check.

REFERENCES:

AR 95-1

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform takeoff and climb checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain RPM 6,600.
2. Check systems.
3. Transponder (as required).

DESCRIPTION: Make normal takeoff climb at 60/70 knots. Note control positions normal, engine and transmission instruments for normal indications, and check for abnormal vibrations.

REFERENCES:

TM 55-1500-219-MTF

TASK: TF 5051

TASK: Perform level off checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain a predetermined altitude.
2. Check instruments.
3. Begin fuel consumption check.

DESCRIPTION: Climb to predetermined altitude. Maintain constant altitude, airspeed, and heading. Note engine oil pressure, engine oil temperature, transmission oil temperature and transmission oil pressure. Begin final consumption check.

REFERENCE:

TM 55-1500-219-MTF

TASK: Perform control rigging check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Force trim on.
3. Maintain airspeed of 90/100 knots.
4. Maintain torque at 30 psi.
5. Insure needle and ball are centered.
6. Note cyclic and pedal positions.
7. See statement #1.

DESCRIPTION: Maintain appropriate airspeed, torque, centered needle and ball, and note that the cyclic nearly centered, and right pedal is 0.5 to 1 inch forward (pedals should be aligned on UH-1B with symmetrical tail boom).

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5057

TASK: Perform autorotative RPM check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain altitude sufficient to allow power recovery at or above 500 feet AGL.
2. Maintain airspeed at 60 KIAS.
3. Make sure a suitable landing area is within gliding distance.
4. Perform correct autorotation entry procedure.
5. Note N1, trim, vibrations, and RPM.
6. Perform correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 60 knots and smoothly lower collective to full down position, noting that main rotor does not overspeed, and reduce throttle to flight-idle position. Note N1 has stabilized at flight-idle (68-72 percent), needle and ball are centered, sufficient right pedal remains, no unusual vibrations are present, and rotor has stabilized at appropriate RPM. Perform power recovery by smoothly increasing throttle to full open (note needles joined) and increase collective to a power setting that will establish a definite climb.

REFERENCES:

AR 95-1

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform hydraulics off check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain altitude IAW local directives.
2. Maintain airspeed at 60-90 knots.
3. Complete copilot/observer briefing.
4. Perform aircraft controllability check.
5. See statement #1.

DESCRIPTION: Have copilot/observer identify and turn off hydraulic control switch. Note that master caution and hydraulics off caution panel segment lights are lit, then reset master caution. Make turns to left and right. Decrease collective to 13 psi then increase collective to achieve 33 psi torque. Use pedals to maintain an in-trim condition then have copilot/observer return hydraulic control switch to on. Note that master caution and caution panel segment lights are off. Throughout the maneuver, notice that feedback forces are not excessive and that all control movements produce the desired results. Pay particular attention to cyclic forces required in the forward right quadrant.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5063

TASK: Perform engine topping check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Insure bleed-air heater and de-ice switches are off and one altimeter is set at 29.92.
2. Maintain airspeed of 60-90 knots.
3. Maintain altitude as required, not to exceed 10,000 feet.
4. Perform engine topping.
5. See statement #1.

DESCRIPTION: Adjust collective to achieve 40 psi climb. Note N1 and determine topping altitude. Continue climb at a normal rate until topping altitude is reached. Increase collective to droop N2 to 6,400 RPM. Maintain 6,400 RPM with collective and, while passing through the next 1,000-foot increment pressure altitude, record FAT, torque, N1, EGT, and PA. Increase collective to droop N2 to 6,200 RPM and note that N1 has not increased. Smoothly reduce collective and resume normal flight; reset altimeter.

REFERENCES:

TM 55-1500-219-MTF

TM 55-2840-229-23-1/-2

TASK: Perform stabilizer bar check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Force trim on.
2. Maintain altitude IAW local directives.
3. Maintain airspeed at 80 to 90 knots.
4. Perform turns left and right.
5. See statement #1.

DESCRIPTION: Maintaining level flight, apply cyclic and depress the force trim centering button until a 10° to 20° angle of bank is established. Simultaneously release the centering button and stop cyclic movement, then note the number of seconds required for the angle of bank to begin increasing. Following time should be 5 seconds ± 1 second in each direction. Perform the check during left and right turns, force trim off.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5069

TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Reduce airspeed to "0" knots.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, reduce airspeed to zero while maintaining altitude. The aircraft should be facing into the wind and will be moving rearward at current wind velocity when zero airspeed is attained. After checking that vibration levels are within tolerance, and with sufficient left pedal, increase airspeed to 70 KIAS.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform 70 knot 10 psi descent.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Fly aircraft at 70 knots, straight and level.
2. Maintain altitude IAW local directives.
3. Maintain speed at 70 knots and reduce power to 10 psi.
4. Note vibration level.
5. See statement #1.

DESCRIPTION: While flying straight and level at 70 knots, note vibration level. Maintain 70 knots and reduce power to 10 psi torque. Note any change in vibration level. Reestablish 70 knots straight and level flight.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5075

TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Establish airspeed at 70 knots.
2. Maintain altitude IAW local directives.
3. Increase airspeed in 10-knot increments.
4. Note change in vibration level.
5. Compute VNE.
6. See statement #1.

DESCRIPTION: Maintaining straight and level flight, slowly increase airspeed from 70 knots up to VNE in 10-knot increments (unless vibrations get uncomfortably severe). Note any changes in vibration level. Note airspeed. At no time will VNE be exceeded for the existing conditions. Reestablish normal flight.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform cyclic rigging check (UH-1B, D, and H).

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Turn force trim off.
2. Compute VNE.
3. Maintain altitude IAW local directive.
4. Increase airspeed to VNE.
5. Note cyclic position and cushion.
6. See statement #1.

DESCRIPTION: Maintain aircraft in trim, increase airspeed to VNE and note cyclic position. Apply slight aft cyclic a couple of degrees to start a nose up movement of the aircraft, then SMOOTHLY APPLY forward cyclic to the stop and back to the VNE position. One to two inches of spring cushion should be felt prior to contacting the stop.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5081

TASK: Perform flight instruments check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Check flight instruments.
2. Maintain altitude IAW local directives.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes, checking performance of the following instruments: airspeed indicators, altitude indicators, altimeters, gyro compass, vertical speed, standby compass, turn and slip indicator, clock and instrument panel.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: Perform communication and navigation equipment check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

Insure that all installed equipment is operationally checked.

DESCRIPTION: Check position of all installed equipment as indicated in the appropriate manuals.

REFERENCES:

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TASK: TF 5087

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219 MTF to perform the after-landing and engine shutdown checks.

REFERENCES:

AR 95-1

TM 55-1500-219-MTF

5-8. UH-60 MAINTENANCE TEST PILOT TASKS.

TASK: TF 5600

TASK: Perform preflight inspection.

CONDITION: In a UH-60 helicopter prior to flight.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

REFERENCES:

AR 95-1

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5605

TASK: Perform before-starting engine checks.

CONDITION: In a UH-60 helicopter prior to starting engines.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform before-starting engine checks.

REFERENCES:

AR 95-1

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform ground taxi.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Insure outside area is clear.
2. Remove chocks and tiedowns.
3. Secure doors.
4. Release parking brakes.
5. See statement #1.

DESCRIPTION: While performing ground taxi, the pilot and copilot should check their brakes independently. Check the tail wheel lock for operation. Taxi to test flight hover area.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5622

TASK: Perform engine health indicator test (HIT)/anti-ice.

CONDITION: In a UH-60 helicopter; before takeoff check is complete.

STANDARDS:

1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform takeoff to a hover.

CONDITION: In a UH-60 helicopter; before takeoff check completed, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Insure that cyclic, collective, and pedal control response is normal.
3. Perform gradual vertical ascent.
4. Note that apparent center of gravity is normal.
5. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude. Hovering into the wind, note that cyclic is 1 inch forward of neutral, and left pedal is forward of neutral about 1-1/2 inches.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5626

TASK: Perform SAS Check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Maintain minimum hovering altitude of 20 feet.
3. Head aircraft into the wind.
4. Insure that boost, SAS #1, and trim are ON.
5. Insure that SAS #2 and FPS are OFF.
6. Check controllability.
7. See statement #1.

DESCRIPTION: Move cyclic forward and aft to get 3° pitch attitude change. Attitude should return to trim within ±1°. Then move cyclic left and right to get a 5° to 7° roll attitude change. Attitude should return to trim within ±1°. Make a 20 percent torque change and observe heading response. Heading should not change more than 15°. Repeat check with SAS-2 engaged and SAS-1 off.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform FPS check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Head aircraft into the wind.
3. Maintain minimum hovering attitude of 20 feet.
4. Engage boost, SAS #1, SAS #2, trim FPS.
5. See statement #1.

DESCRIPTION: Hands off attitude retention in pitch and roll should be ± 1° (calm wind). Heading hold should be ± 2° introducing cyclic pulses 5° in pitch and 10° in roll. Helicopter should return to trim attitude with no more than one 3° overshoot. Transient heading hold with a 20 percent torque increase and return to original power setting. Heading should be ± 15° or original setting.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5632

TASK: Perform tail rotor backup check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Complete copilot briefing.
2. Head aircraft into the wind.
3. Maintain minimum hovering altitude of 20 feet.
4. See statement #1.

DESCRIPTION: Move tail rotor switch to backup position. Hydraulic pressure to tail rotor should be within 1 to 3 seconds. After check is completed, place tail rotor switch in NORM position.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform autorotation RPM check.

CONDITION: In a UH-60 helicopter at sufficient altitude for power recovering, 80 KIAS, day, VMC.

STANDARDS:

1. Perform cruise flight at 80 KIAS.
2. Maintain adequate altitude to allow recovery at 500 feet AGL.
3. Insure that flight path is clear.
4. Insure suitable force landing areas.
5. Set one altimeter to 29.92 in Hg.
6. Enter autorotation.
7. Record RPMR at check altitude.
8. Make power recovery.
9. See statement #1.

DESCRIPTION: Set one altimeter to 29.92, climb to check altitude and level off, maintain 80 KIAS after FAT has stabilized, record, then climb an additional 1,000 feet, level off, stabilize at 80 KIAS, retard number 1 engine power, continue lever to idle and check engine stabilized at idle, reduce collective slowly to fold down, maintaining 80 KIAS. Retard number 2 engine power, continue lever to idle when passing through, check altitude, record percent RPMR and fuel quantity. Advance number 1 and number 2 engine power, continue levers to fly detent, and make a power recovery.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5645

TASK: Perform in-flight controllability check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Level flight at 100 KIAS.
2. See statement #1.

DESCRIPTION: In level flight, check the position of the cyclic and antitorque pedals per TM 55-1520-237-MTF; also, check that airspeed indicators are within 5 KIAS of each other. Note any abnormal vibrations. Establish a steady state autorotation and verify that the stabilator position is between- 3° to- 7°.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform maximum power check.

CONDITION: In a UH-60 helicopter at predetermined pressure altitude and 110 KIAS, day, VMC.

STANDARDS:

1. Determine TEAC targets.
2. Climb to predetermined pressure altitude.
3. Maintain 110 KIAS.
4. Insure anti-ice and heater switches are off.
5. Perform TEAC using MTF manual.
6. Record data.
7. See statement #1.

DESCRIPTION: Maintain 110 KIAS, with one altimeter set at 29.92, and anti-ice and heater off. Perform maximum power check on one engine at a time, using procedures in TM 55-1520-237-MTF.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-6

TM 55-2840-248-23

TASK: TF 5655

TASK: Perform stabilator check at 120 KIAS.

CONDITION: In a UH-60 helicopter, day , VMC.

STANDARDS:

1. Perform level flight at 120 KIAS.
2. Trim aircraft.
3. See statement #1.

DESCRIPTION: During level flight at 120 KIAS, the stabilator position indicator pointer is- 1° to +3°. Displace the trim ball one width to the right and insure stabilator position pointer is about 2° down from previously noted position. After the check, release the pedals and the trim ball should come within one-half a ball from center. Now displace the trim ball one ball width to the left, and the stabilator position pointer is 2° up from original trim position. After the check is completed, make 45° banked turns left and right with fixed collective and note that stabilator position pointer is about 1° down from original trim position.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform FPS check during flight.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Perform level flight at 120 KIAS.
2. Trim aircraft.
3. See statement #1.

DESCRIPTION: Perform the FPS check as outlined in TM 55-1520-237-MTF.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: TF 5662

TASK: Perform low rotor RPM check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Maintain 140 KIAS.
2. Maintain level flight.
3. Perform checks required by MTF manual.
4. See statement #1.

DESCRIPTION: Maintaining 140 KIAS, decrease engine RPM switch to 96 percent RPMR. If low rotor RPM caution light and audio warning does not activate, lower collective slightly to activate. Increase engine RPM switch to 100 percent RPMR; also, while at 140 KIAS, check airspeed indicators, vibration level, and that stabilator setting- 1° to +3° range.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

TASK: Perform Vh check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Determine Vh speed.
2. Maintain level flight.
3. Insure that needle and ball are centered.
4. Do not exceed 100 percent torque or 85°C TGT.
5. Perform checks required by MTF manual.
6. See statement #1.

DESCRIPTION: Increase airspeed and power to maintain level flight until 100 percent torque is obtained or 85°C TGT. At Vh, check to see that at least 2 inches of distance exists from instrument panel to cyclic stick. Right pedal should not be over 1 inch forward of neutral; collective pitch control should not be against upper stop. Check that stabilator position indicator pointer is in the -1° to +3° range. Check any abnormal vibrations.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-10

TM 55-1520-237-23-series

TASK: TF 5670

TASK: Perform navigation and communcation equipment check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Check navigation equipment.
2. Check communication equipment.
3. See statement #1.

DESCRIPTION: Check operation of all navigation and communication equipment installed as indicated in the appropriate manuals.

REFERENCES:

TM 55-1520-237-MTF

TM 55-1520-237-23-series

GLOSSARY

A

AAPART ..... Annual Aviator Proficiency and Readiness Test
AGL ..... air ground level
AMOC ..... Aviation Maintenance Officer Course
ASI ..... additional skill identifier
ATM ..... aircrew training manual
AUTO ..... automatic

C

Continuation Training ..... training designed to maintain an aviator's proficiency on a day to day basis

D

DES ..... Directorate, Evaluation and Standardization
DOES ..... Directorate of Evaluation and Standardization

E

ECL ..... engine condition level
EGT ..... exhaust gas temperature
ENG ..... engine
ETM ..... extension training material

F

FAC ..... flight activity category
FAT ..... free air temperature
FPS ..... flight path stabilization
FW ..... fixed wing

G

GOV ..... governor

H

HIT ..... health indicator test
HYD ..... hydraulic

I

IAW ..... in accordance with
IFTF ..... individual flight training folder
IN HG ..... inches of mercury
IP ..... instructor pilot

K

KIAS ..... knots indicated air speed

M

Mission Training ..... training designed to prepare the aviator to perform a unit's mission task
MTF ..... maintenance test flight
MTFE ..... maintenance test flight evaluation
MTP ..... maintenance test pilot

N

NORM ..... normal
N1 ..... gas turbine speed
N2 ..... power turbine speed

O

OGE ..... out-of-ground effect

P

PA ..... pressure altitude
PSAS ..... pitch stabilization augmentation system
PSI ..... pounds per square inch
PTIT ..... power turbine inlet temperature

R

Refresher Training ..... training designed to retrain an aviator after a long period of absence from flying
REL ..... release
RPM ..... revolutions per minute
RPMR ..... revolutions per minute rotor
RRPM ..... rotor revolutions per minute
RW ..... rotary wing

S

SAS ..... stability augmentation system
SCAS ..... stability and control augmentation system
SIP ..... standardization instructor pilot
STVA ..... self-tuning vibration absorber
SYS ..... system

T

TEAC ..... turbine engine analysis check
TGT ..... turbine gas temperature
TSARCOM ... Troop Support and Aviation Materiel Readiness Command

U

USAAVNC ... United States Army Aviation Center
USATSCH ... United States Army Transportation School

V

VGI ..... vertical gyro indicator
VMC ..... visual meteorological conditions
VNE ..... velocity not to exceed

3000021306

PENTAGON LIBRARY
3000021306